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PHYSICIAN FOR SHIPS;

CONTAINING

MEDICAL ADVICE

FOR

SEAMEN AND OTHER PERSONS AT SEA,

ON THE

TREATMENT OF DISEASES,

AND ON THE

PRESERVATION OF HEALTH

IN SICKLY CLIMATES, AND ALSO IN CALIFORNIA.

BY USHER PARSONS, M. D.,

Late Surgeon in the U. S. Navy, and President of the Rhode Island Medical Society; Honorary Member of the Massachusetts, New Jersey, Philadelphia, and South Carolina Medical Societies.

FOURTH EDITION.

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P R E F A C E.

Former editions of this work contained extracts from reviews of it inserted in medical journals, in which learned men of the profession extolled its value to the full measure of its deserts. Having now reached the fourth edition, the character of the work is too extensively known and established to need any such high commendations, and the pages they occupied are therefore filled with more useful matter.

The chapter containing advice to Invalids who seek health in a warmer climate has been improved; — a new chapter of several pages on California has been added, containing advice to persons bound to that region, both by sea and overland, for the preservation of health and cure of disease on their way and while employed at the gold diggings; — the medicine chest has been revised and improved, and the chapters on ship-fever and on cholera have been enlarged, and several additions and improvements made in other parts of the work.

The contents of the medicine chest and the directions for treating diseases being made to correspond, it is recommended to captains and others who intend to consult the book for advice, to have their chest put up according to the prescribed list, as they will then be sure to find the articles they need, and, if guided by the book in prescribing, to avoid the incumbrance of many others that are useless. This advice, however, is not intended to hinder the captain from adding such medicines as he, from long use, is partial to.

The author would recommend to captains and mates of vessels to give the book one perusal. They will thereby become familiar with its contents, and able to refer to it more readily, and perhaps to prescribe by it many times from memory.

The diseases are classed into general and local; the first including fevers, scurvy, jaundice, dropsy, dyspepsia, epilepsy, apoplexy, lock-jaw, small-pox, and measles. The second class is subdivided into diseases affecting particular portions of the body, as of the head, the neck, the chest, &c. &c. This is done with the view to assist the sailor in referring to an account of his disease. If ignorant of the name of his complaint, and therefore unable to refer to it by the index, he certainly cannot be ignorant of the part of his body that is disordered, and if it be the head, or neck, &c., he has only to turn over the pages till he arrives at the one headed with diseases of that part.

The book being intended exclusively for seafaring people, nautical diseases only are included. A great number of complaints incident to the human body, being thus left out, enables the sailor to refer to an account of his disorder more readily, at the same time that it lessens the expense of the book.

In describing the causes, symptoms, and treatment of diseases, I have availed myself of the assistance of a variety of authors. In giving the symptoms, those only are mentioned, that are most constant, obvious, and invariable. The pulse, which is the grand index to constitutional affections with an experienced physician, is little understood by others, and is therefore referred to in this book in such diseases only as where the morbid change it undergoes is great, and obvious to a common observer. In these diseases it will be advisable for the person who prescribes, to compare the pulse of the patient with his own, or that of some other healthy person. Any unusual frequency, great irregularity, or other deviation from health, will then be readily discovered.

In mentioning the causes of disease, the most common only are noticed. A knowledge of these will be attended with the double advantage of enabling the patient to determine the character of his complaint, and of guarding against their influence in future.

In directions for the treatment, many valuable remedies are omitted; some, because they would increase the list of articles in a medicine-chest, and make its expense objectionable, and others, because they would be unsafe in the hands of the inexperienced. Thus, arsenic for fever and ague, corrosive sublimate for syphilis, and some other complaints, and the concentrated acids in a variety of diseases, though very valuable in the hands of a physician, are unsafe for others to prescribe, and, in the medicine-chest of a merchant vessel, are even dangerous.

THE

PHYSICIAN FOR SHIPS.

OF INTERMITTENT FEVER, OR FEVER AND AGUE.

SYMPTOMS.

IT consists of regular fits of fever, between each of which there is a distinct and perfect intermission. The fits usually commence in the morning. They recur generally every other day—sometimes daily, and in a few instances every *third* day only.

Each fit consists of three stages, termed the *cold*, *hot* and *sweating* stage, which run their course in this order of succession, generally in the space of from three to six hours.

The *cold stage* commences with languor, sense of debility, yawning and stretching, and aversion to exercise. The face and extremities become pale; the skin over the whole body seems constricted, as if cold had been applied to it, and resembles goose-flesh. The pulse is small, frequent and irregular. At length chills come on, with pain in the head, back and loins, followed by universal shaking, and sometimes by vomiting.

Hot stage. After a longer or shorter continuance of the shaking, the heat of the body gradually returns, at first irregularly by transient flashes, soon however becoming steady and intense. There is redness of the skin, increase of pain in the head, thirst, a quick, strong and hard pulse—sometimes delirium.

Sweating stage. At length a moisture breaks out upon the face and neck, which is soon followed by universal perspiration. The heat now descends to its usual standard, the pulse is diminished in frequency, and becomes full and free, and all the other symptoms of fever disappear, leaving the patient, however, a little debilitated.

CAUSES.

Debility, induced by a poor diet, by great fatigue, long watching, depressing passions of the mind, and preceding disease. Cold, united with moisture, in whatever way applied to the body. These, however, only predispose to the disease, since a more efficient cause is necessary to bring it on; and this is exposure to marshy exhalations. In proof of this, there are large districts of country in which the disease never appears, however great the exposure of the inhabitants to the first mentioned causes; while there are others, having marshes and much stagnant water, in which the disease is so common, that in the season of it, very few escape an attack, especially those who labor under any previous debility.

TREATMENT.

The first step in the cure is to cleanse the stomach and bowels. This sometimes arrests the disease of itself, and always renders the operation of other remedies more safe and certain. Twenty-five grains of ipecac, or four grains of tartar emetic, answer the purpose very well, and should be given at the commencement of the cold stage. During its operation, the patient may drink freely of warm water or weak chamomile tea. If the emetic fail of acting downwards and clearing the bowels, it should be followed by a dose of calomel, four grains; or of blue pill, six grains, taken at bed time.

Having cleared the stomach and bowels, we are to commence on the day following with tonics. Formerly bark and wine were the remedies chiefly relied on, assisted sometimes by tincture and decoction of bark and other

bitters. But since the discovery of the essence of bark, in the form of *quinine*, these more disagreeable medicines are laid aside. The quinine may be given in doses of four grains, in pills, or dissolved in water, or mixed in molasses or jelly, every four hours, during the intermediate day between the fits of ague and fever. But on the day following, when the attack may be expected, the dose should be doubled, and should be taken every two instead of every four hours, commencing at sunrise and continuing till the time of the expected fit has passed by. This course will, in a majority of cases, prevent the fever and ague fit entirely, and if it should, we have then only to return to two grain doses of quinine, and continue them once in four hours for four or five days, when, with nourishing diet and some mild tonic, as elixir vitriol, or decoction of quassia, three times a day for two or three days, the patient may be considered as cured.

But should this course fail to prevent the expected ague fit on the second day after the emetic, we should then give another dose of calomel or blue pill, and proceed with the repetition of the same course as before.

When quinine cannot be procured, or is of a bad quality, or has been long used to no effect, other tonic bitters are to be substituted, and taken in the same manner; as decoction of bark, columbo, gentian, quassia, &c. Also charcoal, finely powdered, may be taken in substance, a tablespoonful in gruel.

Opium has been highly recommended in intermittents, and well deserves a trial, since its exhibition does not interfere with the other remedies above mentioned. It may be given in doses of thirty or forty drops of the tincture, landanum, at the commencement of the first cold fit, succeeding that in which the emetic was administered. If the first dose fail to induce warmth in the space of ten or fifteen minutes, give thirty or forty drops more. The tendency of this medicine is to shorten the fit and render it less likely to return.

During the fit, the patient should take freely of warm

drinks, and during the intervals or between the fits, subsist on a nourishing and easily digested food.

It is of the first importance that sailors, who are obliged to *wood and water*, or perform other duties on shore, in situations favorable to the producing of fever and ague, should exercise the greatest caution in their diet and regimen. As a preventive it is advisable for persons in such situations to drink freely of strong coffee, to avoid exposing themselves to sudden changes of temperature, or to evening air, and if possible return to the ship before dark. They should wear warm clothing, indulge in a plentiful diet of flesh highly seasoned; observe cleanliness, preserve a healthy state of the bowels, avoid exercise and all stimulating drinks.

OF REMITTENT FEVER.

SYMPTOMS.

THIS disease partakes in some degree of the nature of intermittent fever, being generally produced by similar causes. There is however this difference between the two, that in intermittent fever, the fits return at stated periods, and on subsiding leave the patient entirely free from all febrile symptoms; while in the present disease, there is only an abatement between the fits, and an irregularity in the time of their recurrence.

It is impossible to describe all the symptoms of remittent fever, since they vary according to the situation and constitution of the patient — the season of the year — the treatment adopted, and many other circumstances, too numerous to mention. Sometimes bilious symptoms predominate, sometimes nervous, and at others putrid — nor is it uncommon to find a succession of these; or even a complication of them in the same person at the same time. Hence this disease has often been termed *mixed fever*.

It is most prevalent in warm climates, where great heat

and moisture rapidly succeed each other — and particularly in marshy situations, abounding with wood and water. Some eminent writers include under this fever, the yellow fever of the West Indies, of New Orleans and Charleston ; also, the Bulam fever, which is so destructive of life at the mouth of the Gambia, and along the whole coast of Western Africa, from the river Senegal to Liberia, and also the fevers of Bengal and Batavia, all of which are highly malignant ; but the propriety of it is doubtful.

TREATMENT.

It should be treated according to its predominant symptoms, or in the same way as that fever is treated to which this at the time bears the nearest resemblance. One remedy, however, seems well adapted to every form of this, and almost every kind of fever at its commencement, and that is an emetic. Take thirty grains of ipecac, or four grains of tartar emetic ; and, during its operation, drink freely of warm water or weak chamomile tea, or toast water.

Should vomiting, however, already have existed in any considerable degree, the emetic may be omitted.

Bleeding is proper in the early stage of the disease, provided there be a hard, full pulse, with great heat of the skin and severe headache.

A dose of calomel should, in all severe attacks, be given early and repeated often, proportioned, however, in quantity and frequency of repetition, to the severity of the attack. Mild cases of simple remittent, as it appears on the Lakes and along the coast of Maryland and Virginia, might require a dose of four to six or eight grains, once daily, assisted with a little oil or salts, and after the operation of the medicine each day, a dose of powder of nitre, ten grains, dissolved in a wineglass of water, may be given every three hours, alternated with a tea-spoonful of spirits of nitre in the same quantity of water. One or the other of these medicines taken every hour and a half. should be accompanied with the free use of cooling drinks

Should the pain be severe after the first bleeding, a blister may be applied to the back of the neck, and the head be constantly wetted with cold water and vinegar. Great heat of the skin, whenever it appears, and in whatever part, should be frequently sponged with cold water. In the early stage of the fever, great heat of the skin may be treated with cold water, dashed on the whole surface, copiously.

In a few days there will be an abatement of the fever, and whenever this is perceptible, quinine should be given every four hours, beginning with doses of about two grains. Should the fever, under this treatment, assume the intermittent form, which it is liable to do in places where the latter prevails, then it is to be treated in like manner as directed for that disease.

Wherever this disease is prevalent, the same preventives should be taken, and the same regimen adopted, as are directed under the head of intermittent fever; as, also, under the head of *advice to strangers in hot climates*.

This is the most common fever in tropical climates. It is not frequent at sea, but generally attacks men when they get into harbor, particularly such as are sent on the business of *wooding* and *watering*, and are thus exposed to the noxious effluvia by which it is produced. It is of very frequent occurrence in the West Indies — on the seaboard and banks of the rivers of the Southern States — on the coast of Guinea in Africa, and the warmer latitudes of the East Indies.

The higher the latitude it occupies, the milder are its symptoms. In 1813, it prevailed in the squadron of Com. Perry, on the south side of Lake Erie, to such an extent as to attack one man out of four of all the crews. Its character, however, was so mild, that one death only occurred. We noticed that changing our anchorage from a leeward to a windward shore, or sailing out into the middle of the lake, would in two days arrest the progress of the disease, and materially improve the health of those already sick.

OF THE LOW TYPHUS, OR SLOW NERVOUS FEVER.

SYMPTOMS.

It commences slowly and imperceptibly, with general languor, dejection of mind, loss of appetite, alternate chills and flushes, dulness and confusion of thought. In a day or two there is a giddiness and pain in the head, with aching pains over the whole body, nausea ; frequent, weak, and often intermitting pulse. At first the tongue is moist, but afterwards becomes dry, brown, and tremulous ; there is little thirst, and the urine is pale and watery. As the disease advances, the heat and other symptoms of inflammation increase, the urine becomes high colored ; sometimes diarrhoea and immoderate sweating ensue ; there is a low, muttering delirium, a starting and twitching of the tendons ; sometimes a coldness of the extremities, convulsions and death.

CAUSES.

Weak and delicate habit of body ; poor living ; warmth of climate ; depressing passions of the mind, as grief, fear, anxiety ; excessive venery, intemperance.

It may be known from putrid or malignant fever, by the attack being more gradual, and the symptoms milder ; from inflammatory fever, by the smallness and weakness of the pulse, and by its more mild accession.

About the 7th, 14th, or 21st day from the attack, the disease usually abates, and the patient from that time slowly recovers.

TREATMENT.

Commence this by cleansing the stomach and bowels with a mild emetic and cathartic combined, as follows :

Take ipecac, thirty grains, and calomel five ; mix them, and give the dose in any convenient vehicle. Or mix four grains of tartar emetic with two table-spoonfuls of Epsom

in half a pint of water, and give a wine glass every half hour till it operates. If this fail to move the bowels once or twice, take some other mild purgative, and repeat it as often as there is the least tendency to costiveness.

If the disease be not arrested by this treatment within the first three days, apply blisters to the legs, and mustard poultices to the soles of the feet. If after this there be much stupor, blister the back of the neck.

The pulp of an orange, or roasted apples, will be both cooling and agreeable to the stomach.

For common drink, he may take toast-water, lemonade, cider, or soda water and thin gruel.

One of the best remedies in the early stage of the disease, after the stomach and bowels have been moved by medicine, is *cold affusions*. The cold water should be dashed on from a pitcher or bucket, wherever the heat of the skin is above the natural standard. If this heat however be confined to particular parts of the body, the cold water may be applied to them alone, with a sponge or wet cloth.

The patient should be kept as quiet as possible, and with a view to promote perspiration and induce sleep, may take every evening a Dover's powder, of eight grains, (or two pills) and have warm poultices renewed to his feet.

During the day-time, administer the following drops : — Take spirits nitre and antimonial solution equal parts, mix them, and give two tea-spoonfuls every three hours, in toast-water.

PUTRID, MALIGNANT SHIP FEVER.

SYMPTOMS.

The attack of this disease is very sudden. The patient is hardly able to stand, and from the first moment seems ready to faint without any apparent cause. There is an intense pain in the head, strong pulsation and throbbing in the temples — sometimes delirium — sickness at the

stomach, followed by a vomiting of black matter. The tongue is at first white, but afterwards appears black and chapped, and the teeth are covered with a black crust — the breath is hot and offensive. The fever continuing to increase still more in violence, symptoms of putrefaction show themselves ; the stools are dark, very offensive, and pass off insensibly ; blood is effused under the skin, forming purple spots ; bleeding occurs from different parts of the body ; the pulse sinks and intermits ; the extremities grow cold ; hickups ensue and death.

This fever may be distinguished from inflammatory, by the smallness of the pulse ; — the great dejection of mind ; — the sudden and extreme debility ; the putrid smell of the breath and stools — and by the purple spots. It may be known from low or nervous fever, by the suddenness and violence of the accession — the intensity of heat and thirst, and the high color of the urine ; — from yellow fever by the matter vomited being void of bile ; by absence of yellowness in the eyes, and by reference to its supposed causes.

It is however sometimes the case, that this is blended with two or three other fevers, particularly the remittent, when it constitutes the fever of Batavia, Bengal, and Bencoolen.

CAUSES.

The room, or atmosphere in which a person laboring under the disease is confined ; — foul air, occasioned by the confinement of a large number of persons in a narrow place not properly ventilated, as in crowded hospitals, jails or ships, especially where cleanliness is neglected ; — exhalations from putrid vegetable or animal substances. Sailors are more liable to its attacks in long voyages.

It is sometimes caused by putrefaction taking place in filthy ballast. In the frigate General Greene an instance of this kind occurred, and a loss of forty or fifty lives was the consequence. The same thing occurred also on board the frigate Philadelphia. In both these instances, the

disease was entirely arrested by deserting the berth-deck and bringing the crew upon the gun and spar-decks, where there was a constant current of air.

This fever is not confined to hot climates, though from the more sudden process of putrefaction of animal and vegetable matter in warm places, and from the debility and consequently greater susceptibility of the system to the disease, it oftener appears in hot than in cold climates.

Great mortality has been caused by this fever among emigrants from Liverpool and other European ports, from being crowded and not cleaning and airing the ship properly.

TREATMENT.

In this disease we should resort to proper remedies at the very onset. It will be best to give at first a light emetic, unless vomiting already exists. A purgative should next be given, of calomel and jalap ten grains, each. This should be repeated, if necessary, every six hours, till it acts as physic. If three or four doses fail to operate, give oil or salts to assist the operation.

It is better not to take blood unless in a strong and hearty man, or unless there is much headache, and only at the beginning of the fever. When headache is severe, leeches, if they can be had, should be applied to the temples.

Whenever the surface is unnaturally hot, cold water should be applied; the head, neck, arms and body, should be washed all over, if possible, every day, with cold water, or spirit and water.

As soon as there is a slight abatement in the violence of the fever, give two grains of quinine in solution or pill, every four hours.

Also, give wine or brandy. Brandy is quite as good as wine, on every account except taste. Begin with a tea-spoonful of brandy in a wine glass of water, every hour. This will often quiet the raving. If it seems to be well borne, increase to a table-spoonful every two hours.

Instead of the quinine, we may use elixir vitriol; giving

ten drops every four hours, in water enough to make it taste pleasantly sour.

Purgatives should not be commonly given after the early part of the sickness, unless the bowels are not naturally opened. Castor oil is the best. Calomel and jalap may be given, if the bowels are bound. If the belly is swelled up with wind, give a tea-spoonful of spirits of turpentine, with a table-spoonful of castor oil. Pills and irritating purges should not be used.

When the patient is not disposed to sleep, give Dover's powders, eight grains (two pills) at bed time, or four grains every six or eight hours. This should not be done at the beginning of the disease, nor when there is much delirium.

When the patient is very stupid or very wild, mustard poultices may be applied to the feet and ankles, not keeping them on long enough to blister.

Persons have sometimes been brought to, and have recovered, after they have been unable to swallow, by means of hot flannels and hot bricks placed outside, and injections of brandy and water to the bowels.

The sick should be lightly covered. All their clothes and sheets should be changed, if possible, every day. All that passes from the bowels, should be removed immediately. A little chloride of lime should be sprinkled about the room twice a day. Ledoyen's disinfecting liquid purifies the air much more perfectly, and does not leave a bad smell of its own. A few drops of it sweeten the air of a small room immediately. It may be used altogether, if it is to be had. The air of the room ought to be changed as thoroughly as it can be. If proper ventilation were introduced on ship-board, this fever would be much less frequent and much less fatal.

On the appearance of this, or any infectious disorder, in a garrison, hospital, ship, or other place where many persons are crowded together, every apartment should not only be cleansed and aired, but fumigated daily, with the following preparation :

Put into an earthen vessel a handful of table salt, and pour into it sulphuric acid sufficient to moisten it throughout. Let it remain in the apartment half an hour, with the doors and hatches or windows closed.

Or,

Where this is inconvenient, burn, by means of a hot iron, sulphur or gunpowder, previously wet with vinegar ; or sprinkle chloride of lime on the floor and on the hammock or bed.

It is proper here to introduce some remarks on the nature, and best mode of treatment, of this fever in its more malignant form, as it usually appears during the sickly season in the ports of the Bay of Bengal, and the coast of Malabar from Bombay to Cape Comorin, in Batavia, Bencoolen (in Sumatra), and Borneo. These remarks were derived chiefly from Drs. Clarke and Johnson.

"The fever attacked in various ways, but commonly began with chills, *pain* and sickness at stomach, vomiting, headache, &c. Sometimes, without any previous indisposition, the patients fell insensible ; as they began to recover from the fit they complained sorely of pain in the *stomach and head* ; and after vomiting a considerable quantity of bile, they soon returned to their senses.

"In whatever form the disease appeared at first, the pulse was small, feeble, and quick, — the pain at the stomach increased, and the vomiting continued. As the paroxysm advanced, the countenance became flushed, the pulse quick and full, the eyes red, tongue furred, thirst intense, headache violent, succeeded by delirium, and the patient became unmanageable ; but a profuse sweat breaking out in twelve or fourteen hours generally mitigated all the symptoms.

"In the remissions, the pulse, which was before frequently 130, fell to 90. The patient returned to his senses, but complained of great debility, sickness at stomach, and bitter taste. This interval was very short, and succeeded by another paroxysm, in which all the former

symptoms were aggravated, particularly the thirst, delirium, pain in the stomach, and vomiting of bile.

"The unfavorable terminations were generally between the third and seventh day. Sometimes there was yellowness of the skin, as in common yellow fever and black vomit. A torpid or irregular state of the bowels commonly preceded this fever."

TREATMENT.

The treatment recommended by Dr. Johnson, and which the surgeons of our navy have, while in Bengal, found most successful, is as follows. First, open a vein, and let the blood flow until it relieves the headache, pain and sickness at the stomach, and vomiting. Meanwhile give a dose of 20 grains of calomel, with half a grain of opium (or 30 drops of laudanum). If this is immediately rejected, the dose may be repeated. This medicine acts like a charm, and after a few hours should be followed by a dose of gentle physic, castor oil or salts. The more copious the discharge from the bowels, the less the danger there is of a return of vomiting. Should the above mentioned symptoms return, the bleeding may be repeated.

Immediately after the operation of the cathartic, five grains of calomel should be given every four or five hours, combined with the opium, or laudanum, as above, until the mouth becomes affected, from which time there is great reason to expect a recovery. It is of the first importance to affect the gums with the mercury as soon as possible, and to this end, if the five-grain powders do not produce this effect immediately, we should assist them by rubbing in mercurial unction on the inside of the thighs two or three times a day.

The patient should be removed to the most airy part of the ship, have his feet bathed frequently with warm water, and his head with cold vinegar and water. "Generally on the third day," says Dr. Johnson, "I found the gums affected with mercury, and then I felt the patient's danger to be materially lessened."

Cold water and cold gruel are of service from the first, and may be drank freely, unless they excite vomiting.

Emetics Dr. Johnson condemns in every stage of this fever, on account of the great irritability of the stomach. When sickness at the stomach has subsided and mercurial action commenced, it may be advisable to give quinine, one grain twice or thrice a day. He does not believe the fever to be contagious, unless patients are crowded together, or cleanliness and ventilation are neglected.

As a preventive of the disease when vessels lie in sickly ports, he insists strongly on abstinence from all stimulating liquors, on very moderate use of animal food, on avoiding exposure to the air on shore in the morning and evening, particularly the latter, and abstaining from violent exercise in the sun. If compelled to *wood and water* in a marshy, noxious atmosphere, the safest hours of the day for it are from three to six o'clock in the afternoon.

As cooler weather approaches, these remittent fevers of the Bay of Bengal assume an intermittent character.

OF THE YELLOW FEVER.

SYMPTOMS.

IN general it begins with short alternate chills and flushes of heat, seldom, however, with those rigors and shakings that mark the commencement of most other fevers. These are immediately succeeded by violent headache, pain in the back, universal debility, and sickness and anguish at the stomach. There is commonly, in the beginning, much bile on the stomach, which is thrown off by vomiting, either spontaneous, or excited by an emetic. In the course of the disease, however, it is not common for the stomach and bowels to be loaded with bile ; there is, on the contrary, rather a deficiency of it, particularly in the most violent and dangerous cases, as is indicated by clay-colored stools.

The eye in a few hours takes a yellow tinge, which soon after extends more or less over the face and whole skin. This is a symptom so striking and constant, that it gives

name to the disease. Its first appearance on the skin is under the cars.

One of the most tormenting symptoms is a constant wakefulness. It is seldom that even delirium comes to the relief of the patient to make him forget himself for a moment; but he continues broad awake, night and day, with his reason and senses sound, in a state of the most uneasy agitation.

One distinguishing and alarming symptom is a constant vomiting, which usually commences within the first twenty-four hours, and about the third day ends in what is called the *black vomit*.

Upon the first attack, the skin is extremely hot and dry, but the external heat soon becomes very little above the natural standard in health, and the skin feels soft and moist. The pulse, which is at first hard and frequent, is afterwards so variable as to be no sure index of danger. The degree of thirst is less in this than in most other fevers, and there is no uniformity in the color of the urine.

Sometimes there is a remission after thirty-six or forty-eight hours from the attack, but the symptoms often recur with redoubled violence.

In the latter stage the debility is extremely great, and the breath highly offensive; bleeding sometimes occurs from the mouth or nose, the pulse sinks, swallowing becomes difficult, and death ensues.

CAUSES.

This disease, though strongly resembling the *Bilious remittent fever* in many of its symptoms, yet differs from it in this, that the air of woods and marshes is not necessary to produce it. It however often arises from the foul air of a ship, either from infectious effluvia, or from putrefaction that takes place in neglected holds. A fit of intemperance, or too much exercise in the heat of the sun, serves to hasten its attack.

It is remarkable with regard to it, that it is confined almost

entirely to those who have recently arrived from a cold or temperate climate. It appears also, that those persons who have been exposed to unwholesome air in the neglected holds of vessels in cold climates, are more particularly the subjects of yellow fever, when they arrive in a hot climate. Those strangers who are young and plethoric are most apt to be attacked.

It may be distinguished from Remittent fever, to which it bears the nearest resemblance, by reference to its causes, as above mentioned. Some writers, however, contend that they are identical.

TREATMENT.

The mere name of yellow fever is sufficient to damp the spirits of sailors. We should, however, not despond because the fatality of the disease is discouraging, but rather redouble our diligence in observing what assistance and relief nature may receive.

It is proper in all fevers of warm climates to commence the cure by cleansing the stomach and bowels. In yellow fever, however, there is such constant irritability of the stomach and inclination to vomit, which we find difficult to check, that taking an emetic may be omitted. During the spontaneous vomiting, that occurs early, the patient may drink freely of chamomile tea.

As a cathartic, the most effectual medicine is calomel, which may be taken in syrup, or mixed with crumbs of bread, in a dose of twenty grains. If this fail to open the bowels, the dose should be repeated, or some other purge administered, such as is most agreeable to the patient, within two or three hours after the first. Sometimes a third and even a fourth dose may be required. The advantages calomel possesses over other medicine, are, that it is less offensive to the taste, and less bulky, on account of which, and of its greater weight, it is less likely to be thrown up by vomiting.

With regard to bloodletting, a remedy in high repute with Dr. Rush and some others, the most that is said of it by a great majority of those practitioners, who have treated the

disease in ships and in the West Indies, is, that where the patient is young and corpulent, and there is a hard throbbing pulse with violent pain in the head and back, it may be advisable to draw a small quantity of blood in the first twelve hours, but that it is not safe to take any after this period.

Cold water applied externally is a powerful remedy, and sometimes arrests the disease at the onset. When, therefore, a person is attacked, and there is an unnatural heat of the skin, cold water should be dashed over him from a bucket or pitcher. Where the heat is confined to particular parts, the water should be applied to these with a sponge or towel. The head will probably require this, more than any other part.

The great object in the cure of this fever is to bring the stomach to bear quinine. The only obstacle to its administration is the disposition to vomit, which is the most fatal symptom of the disease, and the principal part of the management consists in the prevention or removal of it. The stomach is therefore to be treated with the utmost tenderness, and only such medicines and drinks given as are very grateful. To quiet the stomach, the effervescing mixture* is highly recommended, and may be given every hour, and to each dose may be added 30 drops of laudanum. Or instead of these, we may give the chalk mixture in table-spoonful doses every half hour, and oftener if the stomach rejects it.

But the most effectual remedy for allaying vomiting is a large blister applied over the stomach, and this must be laid on early, or as soon as the vomiting has commenced.

No other internal medicine need be recommended, for whatever power of retention the stomach may have should be employed upon quinine.

To take inflammation from the vital parts, blisters may be applied not only over the stomach but to the legs. To hasten the drawing of them, the parts may be previously

* See Appendix.

rubbed with peppered vinegar or other strong stimulants. With the same view warm mustard poultices* should be applied to the soles of the feet every twelve hours.

It is very desirable in this fever to excite a mercurial action, so far at least as to induce a coppery taste, and some spitting, but this cannot be done by mercurial pills or other internal medicines, for reasons above stated, viz. the necessity of appropriating the retentive power of the stomach to quinine. The object must therefore be attained by the use of mercury externally. To this end rub a portion of mercurial ointment, of the size of a nutmeg, on the inside of the thighs every eight hours, and dress the blisters, if there be any drawn, with the same substance.

So soon as the bowels have been moved and the stomach will admit of it, administer quinine, in two-grain doses, every two hours.

When the stomach becomes perfectly quieted, it will afford the patient great relief to procure perspiration and sleep, for which purpose a powder, consisting of calomel and camphor, of each two grains, and opium one grain, is to be administered in the evening.

After the first purging, the bowels must be moved every day, but as the stomach will not bear strong purgatives in every case, the effect, for the three or four first days at least, must be produced by clysters of salt water, in connection with the calomel.

From the first hour of the attack, the patient should abstain from solid food, and subsist on sago, gruel, or barley-water. His drink may be lemonade, toast-water, tamarind-water, orange-juice, &c.

The same directions are to be observed in regard to cleanliness, &c., as are given under the head of Putrid Fever.

* See Appendix.

OF ACUTE OR INFLAMMATORY FEVER.

SYMPTOMS.

It commences with general weariness and anxiety, succeeded by dizziness, chills, and pains over the whole body but more particularly in the head and back. These symptoms are followed by redness of the face, throbbing of the temples, great restlessness, intense heat, unquenchable thirst, and nausea. Light is offensive, the skin is dry and parched, the tongue becomes of a scarlet color at the sides, and furred with white in the middle; the pulse is full, hard, and quick; the urine red and scanty, and the body costive. When blood is drawn, it exhibits a yellowish or buffy crust on its surface.

When the disease is not arrested at the commencement, it usually goes through its course in about fifteen days and terminates critically, either by a perspiration, diarrhoea, bleeding at the nose, or the deposite of a copious sediment in the urine. In some instances it however terminates fatally. High fever with stupor and delirium denotes danger, but picking the bed-clothes, twitching of the tendons and involuntary evacuations, portend death.

CAUSES.

Exposure of the body to sudden alterations of temperature, particularly to cold and moisture after being heated; intemperance; violent exercise.

This may be distinguished from all other fevers by the strength and hardness of the pulse, the whiteness of the tongue, and the other symptoms of high fever just mentioned.

TREATMENT.

In this and all other fevers attended with a hard, full, and quick pulse, bleeding is of the first importance, and should be employed as early as possible. The quantity of blood to be taken, must be in proportion to the strength

of the patient and violence of the disease. From one to two pints may serve for a sailor's constitution at the first bleeding; but if after this, his pulse should again become hard and frequent, and other symptoms of fever return, it will be necessary to repeat the operation a second or even a third time, which may be done at intervals of twelve, eighteen, or twenty-four hours from each other, as symptoms may require.

The next step after the first bleeding, is to cleanse the stomach and bowels, which may be done in the following manner:

Take tartar emetic, five grains; Epsom salts, two table-spoonfuls: mix and dissolve them in a pint of water: give a third of this solution every half hour. If the first and second dose produce the desired effect, the third may be omitted.

Or, take a common emetic, and in twelve hours after a dose of salts or some other active cathartic. During the operation of the medicine upon the bowels, the patient may take freely of gruel or barley-water.

To obviate a tendency to costiveness, allay thirst, and promote a gentle perspiration, the patient may drink freely of toast-water, flaxseed-tea, or barley-water, acidulated with cream of tartar. If this mixture be not sufficiently laxative to produce two or three motions of the bowels every twenty-four hours, administer the cooling mixture * in doses of a table-spoonful every three hours.

Where the bowels are sufficiently loose and require no laxative medicine, instead of the foregoing, give the following mixture :

Of antimonial solution and spirits of nitre equal parts: give two tea-spoonfuls every three hours in toast-water.

For the purpose of allaying inordinate heat of the skin of any part, sponge it frequently with cold water.

If heat and thirst continue very great, the patient may take powder of nitre ten grains, every three hours, and drink freely of cold water.

* See Cooling Mixture in the Appendix.

From the first attack, warm poultices, made of pounded bread, should be applied to the feet, morning and evening.

If there be a tendency of the disease to any particular organ, as the brain, which will be known by the presence of great pain of the head or delirium, or to the chest, which difficult breathing will indicate, a blister should be applied to the neighborhood of the part affected.

Opium is so doubtful a remedy in acute fever, that no preparations of it should be prescribed, unless by a regular practitioner of medicine.

Throughout the whole course of the disease the patient must abstain from solid food and animal broths, supporting nature with gruel and preparations of barley, sago, &c. His bed should be lightly covered with clothes, and his apartment preserved of a moderate and equable temperature.

S C U R V Y.

SYMPTOMS.

It commences with unusual weariness, dejection of spirits, sluggishness, and offensive breath. The gums become soft, livid and swollen, are apt to bleed from the slightest cause, and separate from the teeth, leaving them loose. About the same time the legs swell, are glossy, and soon exhibit foul ulcers; the same appearances follow, on other depending parts of the body. At first the ulcers resemble black blisters, which spread and discharge a dark colored matter. Unless the general habit be now corrected by proper diet and regimen, these ulcers increase, great emaciation ensues, bleedings occur at the nose and mouth, all the evacuations from the body become intolerably fetid, and death closes the scene. During the progress of the disease, the pulse is generally natural, but towards the fatal termination, it becomes weak and remitting. The appetite continues very little impaired, and

in some cases the patient, even within a few hours of his dissolution, is more eager than ever, in his calls for food. His mind remains sound, for the most part, to the last. The fatal termination, though gradual in some instances, is generally sudden, and is frequently accelerated by attempts to move the patient on shore.

CAUSES.

Cold, moist air; the long continued use of salted provisions, or other food that is hard of digestion and affords little nourishment; deficiency of vegetables; want of cleanliness; indolence; depressing passions of the mind; smoking and chewing great quantities of tobacco; the putrid stench of bilge water.

TREATMENT.

This is to be managed by pursuing a course of diet and regimen directly opposite to that which induced the disease. Where this can be done, medicine is almost unnecessary. Among the most celebrated and infallible remedies, are succulent fruits, of which oranges, lemons, limes and apples, are the best. Unfortunately, however, these articles are with difficulty preserved on long voyages, and consequently least likely to be found when most wanted. Perhaps then no article after these is so valuable in long voyages, both for its efficacy and imperishable quality, as potatoes, which have moreover the advantage of being cheap and easily supplied in almost every port. I rarely used any other remedy in a man-of-war, and always laid in a stock of them with the hospital stores, purposely for the cure of scurvy. Whenever a scorbutic patient reports himself unfit for duty, I direct him to abstain from all salted food, and to commence eating raw potatoes scraped and mixed with vinegar, to the quantity of from one to three pounds of the potatoes a day, according as they may agree with his stomach and bowels. The dish is very agreeable, resembling salad or sliced cabbage. With the same materials I dress scorbutic ulcers, and find it as

valuable and as conducive to healthy action as any application I have used.

It is probable that cabbages, turnips, &c., are equally as valuable as potatoes. A preparation of cabbage, called krout, is a highly reputed anti-scorbutic, and can be kept for years. All vegetable acids, as lime juice, tamarinds, cider, pickles, &c., are excellent remedies; also all saccharine fruits, as pine apples, raisins, and figs. When neither vegetables nor lemon juice can be procured, take three or four times a day, Nitre in doses of ten grains, dissolved in vinegar and sweetened. If the vinegar of the ship be exhausted, use in place of it the concrete salt of lemon or tartaric acid dissolved in water.

So sudden is the salutary effect of an anti-scorbutic diet, that the worst cases of scurvy are very perceptibly relieved by it, in the first twenty-four hours.

Such is the general treatment to be adopted in scurvy: but particular symptoms will require a separate management. Pains of the belly must be allayed by emollient drinks, as barley-water, or sago, and by opiates; difficulty of breathing by the pectoral mixture; * diseased gums are to be washed with sal nitre so far diluted with water as to be agreeable to the taste, or with decoction of bark or quassia, or a weak solution of alum; — the rigidity of the muscles, particularly the contraction of the hams, and the livid hardness of the calves of the legs, may be removed by warm bathing and emollient poultices; costiveness may be obviated by a solution of cream of tartar.

It is very remarkable that this disease should at the present day be suffered to prevail in merchant ships, often to the destruction of half their crews, when preventives are so well known and so easily supplied. In crossing the Atlantic in a frigate in 1818, we fell in with a French ship bound from South America to Havre, where this disease had prevailed to such a degree, that one third of her crew were dead, another third at the point of death, and the other survivors more or less diseased; all which calamity might have been prevented by a supply of potatoes

* See Mixtures, in the Appendix.

and lemon juice of the value of five dollars, or perhaps half that value of tartaric acid or the concrete salt of lemon.

One of these acids should be introduced into every medicine chest in large quantities, since it is imperishable by long keeping, and may be carried to sea for years, and serve as a last resort when every other acid and anti-scorbutic in the ship is exhausted. It has the further advantage of being cheap, and less bulky and incommodious than other acids of equal value.

An excellent wash for scorbutic ulcers is made by dissolving a large table-spoonful of nitre or saltpetre, in half a pint of vinegar, with which cleanse the ulcers twice a day. I may further add, that where a crew is threatened with this disease, it is of the first importance to preserve the ship clean and dry, and to keep the crew in gentle and pretty constant exercise.

J A U N D I C E .

SYMPTOMS.

Loss of appetite — aversion to exercise — yellowness of the eyes, and subsequently, of the whole skin. The urine is highly colored and tinges the linen yellow ; the stools are white, or of a clay color. The patient complains of a bitter taste, nausea and sickness at the stomach. Generally there is costiveness, which, however, is occasionally interrupted by diarrhoea. Frequently a sense of uneasiness and darting pain is felt under the short ribs of the right side and at the pit of the stomach.

CAUSES.

The *immediate* cause is an obstruction to the passage of bile, from the liver into the intestines, on account of which, it is thrown back into the circulation and diffused over the body, imparting to it the yellow color above mentioned. This obstruction may proceed : — 1. From the lodgment of

a stone in the gall-duct. This variety of jaundice may be known from the others, by occasional acute pains under the short ribs of the right side. 2. It may proceed from indurated mucus, lodged in the passage of the gall-duct. This variety follows a sedentary habit, debility, a long continued mercurial course for the venereal disease, and is generally unattended by pain. 3. The obstruction may proceed from an enlargement of the liver, as in what is called the *ague-cake*, which often succeeds the intermittent or remittent fever, or from that chronic inflammation of the liver which is occasioned by hard drinking. In this variety of jaundice, the enlargement of the liver can be felt, which distinguishes it from other varieties. There are other kinds of jaundice, but they rarely occur among sea-faring people.

TREATMENT.

Of the first variety. If pain and inflammation exist in considerable degree, bleed and bathe the part with warm water; in addition to which, employ the remedies recommended in the second variety.

Second variety. Administer an emetic every other morning, and if it fail to move the bowels, give on the intervening days a mild cathartic, of calomel and jalap mixed in syrup or other convenient vehicle, and repeat the dose every three hours, till it operates. Or, blue pills, three or four, with castor oil, a table-spoonful. Or, calomel alone, twenty grains.

A tumbler full of sweet oil, taken in the course of an hour after the calomel or the blue pill, is found to be a very valuable remedy.

The warm bath, by its relaxing powers, proves very useful in jaundice, and should be employed frequently.

Exercise of the jolting kind, as running, dancing, jumping a rope, is very serviceable. To those who reside on shore, riding on horseback is an invaluable remedy.

In the third variety. Where the liver is enlarged, mercury should be employed, as recommended under the head of *chronic affection of the liver*.

The diet should be light and nourishing.

D R O P S Y .

SYMPTOMS.

General Dropsy commences with a watery swelling in the lower extremities, and first appears towards evening in the feet and ankles, afterwards gradually ascending and occupying the thighs, trunk, and even head. The swelling is not elastic, but pits, when pressed with the fingers, and the pits are slow in filling up. When it has become very general, the belly swells, the breathing is difficult and accompanied by a cough with a watery expectoration. The urine is scanty and high colored ; sometimes, however, it is of a pale whey color and copious. There is costiveness ; paleness of the skin, and oftentimes insatiable thirst.

CAUSES.

An hereditary predisposition to the disease ; certain organic diseases, as of the heart and liver, producing an obstruction to the free circulation of the blood — preceding disease, as jaundice, diarrhoea, dysentery, eruptions, &c. — watery diet.

A *favorable* result may be expected, when the cause of the disease is easily removed, when the constitution is very little impaired, the appetite remains entire, and the respiration free. *Unfavorable*, when there is the reverse of these, when the heart or liver is diseased, — when the emaciation is great, — the thirst insatiable — and where there is drowsiness.

TREATMENT.

The principal indications in the cure of Dropsy are,

1. To evacuate the collected fluid.
2. To prevent its reaccumulation.

The fluid is evacuated,

1. By emetics, which may be taken every second or third day.
2. By cathartics, taken on intervening days.

3. By diuretics, as digitalis, squills, nitre, spirits of nitre, in the following manner :

Take digitalis, one grain, nitre ten grains, in syrup of squills, a tea-spoonful ; every four hours. Or, take syrup of squills, and spirits of nitre, of each a tea-spoonful ; mix and repeat the dose every four hours.

4. Mercury ; so exhibited, as to affect the gums and produce a spitting. This may be combined with the digitalis and squills, in the following manner :

Take calomel, one grain, digitalis in powder, one grain, mixed in syrup of squills a tea-spoonful, and repeat the dose every four hours, till the mouth is affected, and the swelling subsides. While taking the mercury, emetics and cathartics may be omitted.

5. Sudorifics ; as Dover's powders,* every four hours, accompanied by diluting drinks, as toast-water, &c.

To prevent the reaccumulation of water, the patient should subsist on a light, nourishing, high-seasoned diet ; — take bark or quinine, or quassia, and other strengthening bitters, — use exercise, friction and cold bath.

Other remedies might be mentioned, as scarifications, blisters, bandages, &c., but the above are sufficient to keep the disease in check, when it appears on board ship, till medical advice can be obtained from shore.

Dropsy of the chest, belly, &c., are treated of, under diseases of those parts.

OF DYSPEPSIA OR INDIGESTION.

SYMPTOMS.

WANT of appetite, — rising of food and wind from the stomach, — acidity of the stomach, — heart-burn, — flushed countenance after a full meal, — sense of distension in the stomach and bowels, — sometimes rumbling and pain,

* See Powders.

— costiveness, which is now and then interrupted by diarrhoea, — dryness and whiteness of the tongue in the morning, — paleness of the urine. There is general debility, languor and aversion to motion, dejection of spirits, disturbed sleep and frightful dreams.

CAUSES.

Whatever debilitates the system in general or the stomach in particular, as opium, — spirituous liquors, — hot and strong tea or coffee, — tobacco — long continued vomiting excited by too powerful emetics, or long protracted seasickness, — poisons, — sedentary life, — depressing affections of the mind, — excessive evacuations, — diseased liver, — excessive venery.

CURE.

The first and most important step is to avoid whatever may have tended to give rise to the disease and continues to aggravate it; until this is done, medicines will be of very little service.

The remedies then are,

1. Emetics. One of the gentle kind should be the first medicine given, and if afterwards nausea return, accompanied by rising from the stomach of imperfectly digested food, or acid substances, the emetic after four or five days should be repeated.

2. Purgatives of the stimulating and gentle kind, as powders of rhubarb and magnesia, of each 15 grains, which may be taken whenever there is a tendency to costiveness. If the bowels be difficult to be moved, add to the medicine two or three grains of calomel. Or, in place of this, take the common aloetic pills, or blue pill.

3. A nutritious, easily digested diet. In these respects, animal food is preferable, but in consequence of its tendency to induce costiveness, an occasional meal of light vegetable food may be serviceable, and a moderate use of sub-acid fruits, as apples, pears, &c. The meals should be taken at stated periods, and at intervals of three or four

hours. The drink should be in small quantity, and such as does not become acid. Watch the effects of the different kinds of food and drink, and select that which best agrees with the stomach.

4. Exercise. If on shore, walking, riding on horse-back, or in a carriage, and these in succession, as are most easily borne. Be engaged in some active business or amusement, which will employ the mind. Travelling will therefore be very beneficial.

5. Cold bathing and shower baths,—salt water is preferable. Rubbing the surface with salt and brandy mixed.

Lastly. Tonics, particularly vegetable bitters, as Peruvian bark, quassia, cascarilla, &c., taken in the following manner :

Quassia, cascarilla, or gentian decoction,* a wine glass in every four hours, or a few minutes before eating. After taking it for a few days, its efficacy will be increased by the addition to each dose, of ten drops of elixir vitriol.

Occasional symptoms may require additional remedies.

Acidity of the stomach and heart-burn can be removed by chalk or magnesia. *Occasional pains of the stomach and bowels*, which usually depend on windy distension, may be relieved by a few drops of peppermint. *Diarrhœa*, when it occurs, may be treated by small doses of rhubarb and alum combined thus :

Take rhubarb, five grains, alum two grains, every three hours, till the diarrhœa is arrested.

OF EPILEPSY, OR FITS WITH CONVULSIONS.

SYMPTOMS.

The patient, if standing, is suddenly thrown to the ground in convulsions. During the fit, there are strong contractions of the limbs, twistings of the body, distortions

* See Decoctions.

of the countenance, grinding of the teeth and clenching of the hands. These continue for a few minutes with such violence, that two or three persons are not sufficient to hold the patient ; the fit then subsides, but shortly after is renewed. After three or four returns, they cease altogether and leave the patient senseless, generally in a profound sleep. Commonly the patient has no warning of the fit, yet sometimes it is preceded with pain in the head, unquiet sleep, noise in the ears ; in some instances, by a sensation of cold air commencing in one of the limbs, and gradually creeping upwards till it reaches the head, when the patient falls in a fit. In those who are much subject to fits, they sometimes occur in sleep.

CAUSES.

Irritation of body or violent excitement of mind. But these causes rarely take effect, unless there exist a strong predisposition to the disease, either hereditary, or from debility, with great mobility either natural or acquired. Perhaps no class of people of equally hardy constitutions are so subject to this disease as sailors.

TREATMENT.

The only thing to be attempted during the fit, is to protect the patient from bruises, which his strong convulsions are apt to occasion. Some physicians are inclined to bleed, but this is difficult to do on board ship, and excepting in the robust and plethoric is not advisable in any situation.

When restored to his senses, attend to the exciting cause of the fit, and remove or avoid it. In almost all cases, it is advisable after a fit, to move the patient's bowels, with a draught of salt water, or some other purgative. He should avoid a costive habit, and abstain from ardent spirits, with all other strong stimulants.

When the patient is warned of an attack, it may in some instances be averted by vomiting or purging.

Where the fits recur very often, I have always been able to suspend them by exciting mercurial action.

In cases where the fit commences with a sensation of cold air, creeping along one of the limbs towards the head, apply a string around the limb, and direct the patient to draw it tight, when the sensation is first felt, by twisting a stick, which is to be worn in the string ready for the purpose. I have commonly used a field tourniquet, and have seen a patient avert fits for months, who, without this apparatus, was attacked by them three or four times a week. The pressure need not be continued more than a minute. The apparatus may be so applied, as to occasion no impediment to exercise or labor. Those who are subject to this disease should never be sent aloft, nor indeed on shipboard.

OF APOPLEXY.

SYMPTOMS.

Total suspension of the powers of sense and motion, accompanied by snoring—foaming at the mouth, and grinding of the teeth—the eyes are prominent and fixed, and the pupils dilated—the pulse is very little disordered.

Persons, from fifty to sixty years of age, are most liable to it, particularly those who have short necks, with large heads, and who indulge in the luxuries of the table.

The fit is usually induced by some violent excitement of body or mind, long stooping, derangement of the stomach, overloading it with pastry, fumes of poisonous substances, foul airs, &c.

TREATMENT.

When the patient is seized, take from him a pint and a half or two pints of blood. The difficulty of starting blood in a fit of apoplexy, may make it necessary to open veins in both arms, and both feet, at the same time. The head is to be shaved, and bathed with cold water and vinegar, the feet and legs bathed in warm water, and a drastic

purge administered, of calomel, forty grains ; or calomel thirty, jalap twenty, mixed. If this course fail to render the patient sensible, a large blister must be applied to the head and the bleeding repeated.

The rare occurrence of this disease among sailors, renders it unnecessary to say more of it here.

OF TETANUS, OR LOCKED-JAW.

SYMPTOMS.

It commences with a sense of stiffness in the back part of the neck, rendering the motions of the head difficult and painful. This is soon succeeded by difficulty of swallowing ; pain, often violent, about the breast bone and thence shooting to the back ; rigidity of the lower jaw, which increasing, the teeth become so closely set together, as not to admit of the smallest opening. If the disease proceed further, a greater number of muscles become affected, and the body is forcibly bent either backwards or forwards. At length the trunk, limbs, and countenance are distorted to a most painful and shocking degree. A remission of these symptoms occasionally takes place every ten or fifteen minutes, but they are renewed with aggravated force by the slightest causes, even the least motion of the patient, or the touch of an attendant. Finally, a general convulsion puts a period to a most miserable state of existence.

The duration of lock-jaw is various.

CAUSES.

The disease is very common in hot climates, and is most frequent when a scorching sun is succeeded by a heavy rain or dew.

But besides exposure to sudden changes of temperature, it is often caused by a wound of a nerve or tendon, or by a fractured bone.

TREATMENT.

Give opium in large quantities, as four or five grains every hour, or three draehms of laudanum every half hour. When the patient can no longer swallow, inject laudanum, a table-spoonful in warm water, every hour, and direct it to be retained as long as possible.

With the first dose of opium give twenty grains of calomel, and follow it every six hours by a dose of five grains till the mouth is affected.

Use warm and cold bathing in succession. If the disease proceed from a wound, enlarge it pretty extensively, and pour into it hot spirits of turpentine, or burn the wound with an iron, brought to a white heat.

S M A L L - P O X .

SYMPTOMS.

It begins with pain in the head and back, sickness at the stomach, and chills. In this stage, it may be mistaken for rheumatism or pleurisy. About the fourth or fifth day, it breaks out in small pustules upon the face, breast, and neck, and on the ninth, tenth, or eleventh day, the pustules are at their full size, when they begin to dry and seal off: this is the milder stage or *distinct* small-pox. In the more aggravated kind, called the *confluent*, the pustules are more thick and red, and running into each other, spread over the whole body. They are not at their full size till the fifteenth or sixteenth day. The eyes are completely closed, the fever runs high, and the danger is very great.

TREATMENT.

When the disease breaks out in a vessel,

1. Keep the patient as cool as possible, with light covering to the body, and if the weather be hot, bathe the skin frequently with cold water.

2. Preserve a loose state of the bowels, by administer-

ing a dose of salts, or cream of tartar, or some other mild purgative, every other day.

3. Abstain from animal food, spirituous liquors, and all stimulating or acrid substances, subsisting on rice and molasses, barley, flour, gruel, &c., and sweet or subacid fruits.

This course is to be pursued as long as there is much fever, or until the pustules are filled and begin to turn yellow; the patient may then return to nutritious diet, and take tonics, such as decoction of bark or quassia, and elixir vitriol.

M E A S L E S .

SYMPTOMS.

Slight fever; cough; hoarseness; difficult breathing; sneezing; sense of weight in the head; sickness at the stomach; dulness of the eyes; drowsiness; itching of the face. On the fourth day small red points appear, first on the face, and subsequently on the lower parts of the body. On the fifth or sixth day, the lively red is changed to a brown, and in a day or two, the eruption entirely disappears.

TREATMENT.

Abstain from animal food and spirituous liquors; adhere strictly to a low, unseasoned diet; keep in a moderately cool atmosphere, and preserve a loose state of the bowels by taking castor oil, or cream of tartar, or sulphur and cream of tartar mixed, or small doses of Epsom, or Röhelles.

OF INFLAMMATION OF THE BRAIN, OR BRAIN FEVER.

SYMPTOMS.

Very severe pain in the head; extreme sensibility to light and sound; wild expression of countenance; staring

of the eyes ; peculiarly hard and rapid pulse ; restlessness ; parched tongue ; turgid and flushed face : a rapid flow of ideas.

CAUSES.

Exposure to excessive heat, or to sudden changes of temperature ; *coup de soleil*, or stroke of the sun, from subjecting the head uncovered to its vertical rays ; violent exercise ; the abuse of spirituous liquors ; external violence, &c.

It may be distinguished from madness, by the symptoms of fever and the violent headache which attend it ; from the deliriums of inflammatory and typhus fevers, by reference to its causes, and by its sudden accession after exposure to them.

Active inflammation of the brain usually terminates fatally, and within four days. In a few instances, it ends favorably, in inflammation of some other part, or by some evacuation.

TREATMENT.

Depletion is the principal remedy. From one to two pints of blood should be taken at the first bleeding, and this operation repeated at intervals of a few hours, till the delirium is overcome.

Cathartics, of the active kind, are to be employed, as the following :

Calomel twenty grains, or calomel and jalap, salts two ounces.

After the bowels have been freely moved, give a solution of tartar emetic, one grain every four hours, or of antimonial solution one table-spoonful.

The heat of the head must be allayed by cold water applied with towels, and the neck may be blistered. Blisters should also be applied to the ankles. The feet may be bathed in warm water, and poulticed with mustard-seed, spread over Indian or rye meal poultices.

The patient must subsist on toast or barley water, and gruel.

CATARRH, OR COLD.

SYMPTOMS.

Inflammation of the internal surface of the nose and throat, with a sense of fulness, and an increased discharge from the nose, of an irritating watery fluid. There is usually a sense of weight and pain in the head, oppression of the chest, watery inflamed eyes, soreness of the throat, and sometimes cough ; cold shiverings succeeded by transient flashes of heat.

CAUSES.

Exposure of the body to sudden changes of temperature, wearing damp clothes, &c. Sometimes it is epidemic, and is then called influenza.

TREATMENT.

An emetic is a very efficacious remedy. If the patient be averse to this, administer a dose of salts, or some other cooling purgative.

Preserve an uniform temperature of the body, neither very warm nor cold ; drink freely of warm flax-seed tea, barley or toast-water, with cream of tartar dissolved in it.

Bathe the feet in warm water on going to bed, and avoid exposure of the body to cold the day following. Keep the feet continually warm.

When the cough is very troublesome, and prevents sleep, take pectoral mixture,* two tea-spoonfuls on going to bed, in a large draught of barley-water, or flax-seed tea ; or, take Dover's powder, eight grains, in pills ; or the cooling mixture, a table-spoonful every three hours, adding to the last dose in the evening (which is to be taken on going to bed,) fifteen drops of laudanum.

* See Mixtures in the Appendix.

OPHTHALMY, OR INFLAMMATION OF THE EYE.

There are two kinds.—1. A disease of the eye-ball.
2. Of the eye-lid.

SYMPTOMS.

The former commences with itching, burning, and a sensation, as if sand or sticks were lodged under the eye-lid. The white of the eye turns red, and swells, and there is an increased sensibility of the organ to light and motion. When the inflammation runs very high, a slight fever attends it.

TREATMENT.

When occasioned by the presence of irritating particles, these must be immediately removed.

Unless the ophthalmic be very violent, general bleeding is hardly ever necessary. In all severe cases, however, if leeches can be obtained, apply three or four on the temple, near the eye, every morning.

Take an active purgative of calomel and jalap, every third or fourth day, till the inflammation abates; or salts, an ounce and a half; or the cooling mixture.

To take off the heat of the eye by evaporation, apply frequently to it a soft linen rag, dipped in water, at first blood warm, but afterwards cold.

After two or three days, if the inflammation continue active, apply in the same manner the following:

White vitriol and sugar of lead, each two grains, dissolved in a gill of pure water, or rain water.

If the itching and pain be great, add to the mixture laudanum, two drachms.

If the inflammation be not reduced within three or four days from the attack, apply blisters behind the ears.

From the first attack, abstain from stimulating food and drinks, and keep the eye lightly covered.

In slight cases of ophthalmic, it may perhaps be sufficient

to take some mild purgative, and use the above applications for the eye.

In the other species of ophthalmmy, there is usually a small ulcer at the roots of the eye-lashes; this may be touched with a little warm citron ointment, or with alum-water, by means of a hair pencil.

BLEEDING AT THE NOSE.

TREATMENT.

During the bleeding, sit in a cool air, with the head raised, and wet the neck frequently with cold water. If this fail to stop the bleeding, sit on cold wet clothes, with the skin in contact with them, or in cold water.

If the bleeding still continue, apply astringents to the inside of the nostrils, as the following:—

Powder of alum, a tea-spoonful dissolved in one gill of water. A rag may be dipped in it, and introduced into the nose. Or, apply in the same manner, white vitriol, one drachm, dissolved in a gill of water.

Persons subject to this complaint should avoid a costive habit, and move the bowels frequently, by a draught of sea-water or a dose of salts. If this be insufficient to prevent its return, let blood from the arm. Abstain from stimulating food and drinks, and avoid every occasional cause, as violent exercise, tight neck-cloth, stooping postures, and external heat.

HEADACHE.

The most usual causes are indigestion, foul, or over-loaded stomach, long exposure to the sun, rheumatism, intemperance, too great a determination of blood to the head. Generally, however, it is only a symptom of other diseases, as of fever, catarrh, dropsy, &c.

TREATMENT.

Where a headache is symptomatic of some other disease, it will readily cease on removal thereof, as in the case of fever.

When a foul stomach or the presence of indigestible substances is apprehended, take a gentle emetic, and if costiveness exist, remove it by some mild laxative, or the cooling mixture. (See Appendix.)

If too great a determination of blood to the head be suspected, bleed, and subsist on a low diet.

If the headache be rheumatic, apply blisters to the extremities, or to the back of the neck, and move the bowels by common cathartics.

In cases of slight headache, it may be sufficient to bathe the feet in warm water, and wet the head with ether or spirits.

TOOTHACHE.

TREATMENT.

If the tooth be much decayed, extraction is the only sure remedy. When this is impracticable, the pain may sometimes be relieved, by applying to it pills, made of opium and camphor, equal parts; and oil or essence of peppermint sufficient to moisten the mass. Or, apply elixir paregoric or laudanum on cotton.

If the pain proceed from a cold, or be a rheumatic affection, scarify the gum with a lancet or sharp pen-knife, and apply a blister behind the ear.

EARACHE.

CAUSES.

Whatever induces other inflammations; more frequently, exposure of the ear to a current of air, or to a cold damp wind.

TREATMENT.

Syringe the ear with warm water, and fill it with laudanum or sweet oil, covering the part with flannel. If this fail to relieve, apply a blister behind the ear, take a cathartic, and steam the ear, by holding it to the mouth of a jug filled with hot water. When the pain, instead of abating, increases for three or four days, the formation of matter may be expected, and should be encouraged by the frequent application of warm poultices.

When matter begins to be discharged, syringe the ear frequently, with warm water containing a little soap.

DISEASES OF THE THROAT.

INFLAMMATION OF THE THROAT, OR QUINSY.

SYMPTOMS.

The throat internally, is red and swollen. There is generally some fever, a constant flow of viscid spittle, and pain in swallowing. When the inflammation is not subdued within five or six days from the first attack, a tumor containing matter will appear in the throat, and break.

CAUSES.

The usual causes of inflammation; particularly sudden cold; occasioned by omitting some part of the covering usually worn about the neck; by sleeping in a damp bed; or wearing wet clothes.

TREATMENT.

As it is important to prevent the formation of matter in the throat, the treatment should be active, and early in the disease.

If the symptoms be severe, bleed freely and administer a dose of salts. Bathe the feet in warm sea water. Wear

flannel or a stocking around the neck ; or mash roasted or boiled potatoes, and apply them in a stocking, as warm as the patient can bear. Gargle the throat every ten minutes, with a mixture of warm vinegar and water sweetened ; or, with warm vinegar containing table-salt dissolved.

If this treatment fail to reduce the inflammation within the first forty-eight hours, the bleeding and purging are to be repeated, and a blister applied to the throat.

Abstain from solid food and stimulants.

If matter form, the difficulty of swallowing will be increased, and the patient in some danger of suffocation. In this case, the suppuration must be hastened by inhaling the steam of warm water, from the nose of a tea-pot, and the application of large poultices around the throat.

Those who have had this disease once, are more liable to subsequent attacks.

In slight cases of sore throat, it may be sufficient to wear flannel, or hot roasted potatoes around the throat, and preserve an open state of the bowels.

MUMPS.

This commences with slight fever, followed, in two or three days, by a swelling under the ear. In severe cases, the testicles are affected, and sometimes the brain.

It usually requires nothing more than the application of flannel to the part primarily affected, a gentle laxative, and a low diet. When the case is very severe, or when the testicles and head are affected, use bleeding, purging, &c.

CROUP.

SYMPTOMS.

This is an inflammation of the trachea or windpipe, and is mostly confined to children. There is a hoarseness, particularly in coughing, the sound of which has been com-

pared to the barking of a young dog, or of air passing through a brazen tube. There is difficult breathing and dry cough, which in severe cases increase till the patient is worn out, or till suffocation takes place.

When it occurs on board ship, administer an emetic, employ the general treatment recommended in quinsy, and apply a blister to the throat. The emetic consisting of antimonial solution and squills, mixed; a table-spoonful may be repeated every half hour until it vomits.

CHRONIC BRONCHITIS AND LARYNGITIS.

This disease seldom occurs among sailors; but as those who are affected with it on shore find great benefit in change of residence from a cold to a warm climate during the winter, and are much in the habit of taking passage in ships for Cuba and the other West India Islands, and for the south of Europe, some notice of the disease from one who has seen many cases of it, may be acceptable to such passengers while on board ship.

This disease is more prevalent among clergymen, lawyers, and other public speakers, than among laboring classes. It is called Laryngitis, when the pain, soreness and tickling exist in the top of the windpipe, where it is most prominent, and the disease extends upward, so as to be visible in the throat. It is called Bronchitis, when it extends downward to the sternum, and along underneath it, producing soreness and pain. Both forms of the disease are attended with coughing, but in Laryngitis, the tickling sensation which causes it, is seated in the top of the throat; in Bronchitis, the irritation seems lower down, even in the lungs; the cough is severe, and causes the disease to be confounded with consumption, from which it may, however, be distinguished by the healthy natural sound of the chest on percussion, and by the absence of those respiratory sounds known to physicians as signs of consumption; by the patient's ability to lay on either side, and by the ab-

sence of copious expectoration of pus, especially in the early stages.

There is, however, both in Bronchitis and Laryngitis, expectoration of specks of pus mixed with much glairy mucus, and occasionally there will be streaks of blood.

These two diseases sometimes succeed to severe and long protracted cold, but more commonly they come on spontaneously, and oftentimes so insidiously that the existence of the clergyman's sore throat is often not suspected until it has made great inroads upon the mucous surface of the throat in the form of small excavations, sometimes as large as a split pea, and the whole surface appears rough, as if pitted with small-pox, some specks being very high-colored, and others presenting a foul whitish appearance. Its prevalence among ministers more than any others, is not satisfactorily accounted for; and perhaps it is, after all, more apparent than real — for, with them, it is always sooner known, and more generally from its disabling them for their public duties. It is doubted which sex suffers most from it, but the age most affected is between twenty and forty. Although the surface of the air-pipes shows more of the affection, yet it is believed that muscular debility of the vocal organs is often present.

The affection that appears on inspection of the throat, is probably but a small part of what actually exists; it extends downwards towards the lungs, and the chief source of danger is, that it will run into consumption, and some eminent writers even maintain, that tubercles in the lungs coëxist with the throat affection, but this is doubtful. Another mode of fatal termination is disorganization of the throat itself, either the cartilages composing the larynx or prominent part, or of the pipes that extend into the lungs.

TREATMENT.

Rest of the vocal organs is indispensable; leeches over the part most affected; a blister applied to the top of the sternum or breast bone, and repeated as often as it heals, which is preferable to a continued one. Inhalation of the steam from simmering tar, through a tube attached to the

nose of a teapot half filled with tar, which may stand over a blazer ; or the tar may boil in like manner in a plate, and the patient inhale the steam diffused through his apartment. The vapors of iodine and of chlorine are often used with advantage ; to the former may be added tincture of conium, as directed in several medical works.

Topical applications in solution may be applied with a swab, or, what is better, by sewing a brush of lint to the end of the finger of a glove, which is then drawn on the index finger of the right hand ; the patient is made to gargle, with warm water, and the lint being dipt in the solution, can be readily applied to the larynx. The best solution to apply is nitrate of silver, two grains to an ounce of water, which may be repeated once a day, one in alternate weeks.

Among the gargles that I have tried with most success, is the following : — Rx. Tr. myrrh and ether, of each half an ounce ; honey, one ounce ; and strong sage tea, four ounces.

The internal use of tar water, to the extent of from one to two pints a day, is serviceable. The daily evaporation of alcohol over the throat is by some highly recommended.

A sea voyage to a warm climate during the winter, is among the best remedies.

PUTRID SORE THROAT, OR SCARLET FEVER.

SYMPTOMS.

It commences with cold shiverings — sickness and vomiting — heat and restlessness — great debility — flushed face — hoarseness and sore throat. Upon inspection, the internal surface appears of a fiery red color, which soon becomes darker and is interspersed with specks, of some shade between a light ash and dark brown. There is considerable fever, which increases every evening — a small and irregular pulse, and oftentimes diarrhoea. About the *second* or *third* day, large scarlet colored patches or stains appear

upon the neck and face, and afterwards over the whole body. After continuing about four days, they depart with a scaling of the skin. In bad cases, the ulcers in the throat corrode deeper and deeper, debility increases to complete exhaustion, and the parts mortify. The patient expires usually before the seventh, often as early as the third or fourth day.

This disease is epidemic, often spreading through a whole village. Long exposure to a humid atmosphere, and a debilitated habit, predispose to an attack.

This kind of sore throat may be distinguished from quinsy, or common sore throat, by the eruption or specks above mentioned, by the weak fluttering pulse, general debility, and by the scarlet spots that appear on the skin. Each of these diseases, however, often partakes so much of the character of the other, that it is not always easy to distinguish them. It may be known from croup, by the absence of a croaking hoarseness, and by the presence of visible inflammation and specks above mentioned. The putrid sore throat prevails mostly among children, and rarely appears on board ship.

TREATMENT.

In the treatment of putrid sore throat, bleeding and active purging would be likely to increase the debility, which is already very great. The stomach and bowels must however be cleansed; for which purpose, take ipecac, twenty-five grains, adding to it five grains of calomel, or some other purgative in small quantity.

The principal indications of cure then are,

1. To counteract the putrid tendency that prevails.
2. To wash off frequently the acrid matter from the throat; and, lastly, to obviate debility.

To correct the putrid tendency, Peruvian bark, quinine, mineral acids, and Cayenne pepper, are among the most valuable remedies. They may be taken in the following manner:

Take powder of bark, two table-spoonfuls, Cayenne pep-

per, one table-spoonful ; to which add three gills of boiling water, and after boiling it in a covered vessel ten minutes, add one gill of vinegar. Administer two table-spoonfuls every two hours. Or, take decoction of bark, or of quassia two table-spoonfuls, with ten drops of elixir vitriol, mixed, every two hours.

To cleanse the throat, use gargles of salt dissolved in vinegar ; — or elixir vitriol, a tea-spoonful to half a pint of warm water, sweetened, every ten minutes. Inhale the steam of warm vinegar and water from the nose of a teapot. Breathe the air, made by burning nitre, thus :

Close the patient's room, and upon a chafing dish of coals, throw powder of nitre half an ounce ; which will fill the room with a thick white cloud, that will last for some time. This process may be frequently repeated in the course of the day.

If any particular symptom of an alarming nature arise during the progress of the disease, as diarrhoea, bleeding, &c., it must be checked immediately. For diarrhoea, administer opium and lime water, or powder of alum three grains. Bleeding is also to be treated with astringents, both locally and generally, as directed under the heads of different kinds of bleedings.

PLEURISY.

Pleurisy, *pneumonia*, *peripneumonia*, and *lung fever*, are names given to inflammations of the lungs themselves, or of the membrane that covers them and lines the cavity of the chest. It is however improbable that either the lungs or this membrane are ever inflamed to a great degree separately, the disease of one being generally more or less extended to the other. On this account, and because the symptoms and treatment of the two diseases are nearly the same, they are both included here under the head of pleurisy. I may remark, however, that painful breathing belongs more to pleurisy than to peripneumonia, whilst the latter is, of the two, more likely to prove fatal.

SYMPTOMS.

It commonly commences with the usual symptoms of fever, accompanied or succeeded by a sense of weight, and afterwards pain in the chest. This begins in one side, ordinarily about the sixth or seventh rib, from which it shoots towards the breast-bone and shoulder-blade. The breathing is short and difficult, and the pain is increased on drawing in the breath. There is constant inclination to cough, but every effort is interrupted by the pain it occasions, in consequence of which, viscid mucus collects in the air-passages, and causes a sort of wheezing called rattles.

The disease begins to subside from the fourth to the seventh day: if not so soon as the latter period, the ease may be considered dangerous. The abatement of the inflammation is marked by an amelioration of all the distressing symptoms, and a copious expectoration.

TREATMENT.

The great remedies in pleurisy and peripneumony, are bleeding, blistering and purging. In severe cases its rapid course and fatal tendency require that these should be employed with promptness and energy. Blood is to be drawn from a large orifice in the arm, till the patient is relieved of his pain and difficult breathing, provided the quantity for this be short of two pints. If the first bleeding fail to relieve, or if after relieving, the pain and difficult breathing return, the operation should, after twelve hours, be repeated.

Move the bowels as early as convenient, by a mild laxative, as salts, one ounce, or by the cooling mixture.*

Immediately after the first bleeding, apply a large blister upon the side, near the seat of the pain.

Bathe the feet in warm sea-water, and apply warm poultices to them.

* See Mixtures in Appendix.

Take very freely of warm barley-water, or flaxseed tea, made agreeable with sugar.

If the above fail to relieve the pain and other symptoms, within the first thirty-six hours, move the bowels again by the cooling mixture, taking a wine-glass full every hour, till it operates. Another blister may be applied to the chest, and the bleeding repeated even a third time. As soon as the pain is relieved and expectoration has commenced, give Dover's powders, eight grains, in pills, or pectoral mixture, a table-spoonful, every three hours, and continue the warm drinks.

Preserve a constant warmth of the skin by keeping in bed, and a uniform temperature of the apartment. During convalescence, the patient may subsist on a generous diet, and use wine.

CONSUMPTION.

The great length of time necessary for consumption to develope itself and become confirmed, might lead one to suppose that it can hardly occur on shipboard during a single voyage, and consequently that medical advice would be unnecessary, in a book like this, which is merely intended to afford advice to sailors while at sea, and out of the reach of physicians. Consumption, however, has time to *commence*, in a single voyage ; and when it is considered that it is in the first stage only, that advice and medicine are sure to prove beneficial, the necessity of making the sailor acquainted with the nature of the disease will be admitted.

But another reason for introducing some account of consumption is, that persons laboring under the advanced stages of it, are not unfrequently sent to sea, with the hope of deriving benefit from sailing, or from change of climate, and to such, while on ship board, the following sketch may be acceptable.

SYMPTOMS.

The tubercular consumption, which is by far the most common kind, may be divided into three stages or periods.

In the *first* stage, the disease is slowly developed, ordinarily without being noticed. In this period it is very important to recognize it, but the physician is not often consulted so early. The first symptoms are a short, dry cough, the breathings being more easily hurried by bodily motion, the patient becoming languid, indolent and dyspeptic, and gradually losing his strength; at length, from some fresh exciting cause, the cough becomes more considerable, and is particularly troublesome during the night; breathing is more anxious; sense of straitness and oppression across the chest is experienced; an expectoration takes place, at first of frothy mucus, which afterwards becomes copious, viscid and opaque. These symptoms may be gradually progressing for months. The emaciation and weakness go on increasing; a pain arises in some part of the breast, at first unsettled, but afterwards fixes in one or both sides, is increased by coughing, and sometimes becomes so acute as to prevent the patient's lying upon the affected side.

The disease now passes to the *second* period, in which it is easily recognized. Purulent matter, resembling that made by a common ulcer, is coughed up. To distinguish whether it be such, or only mucus, mix some that is raised in the morning, in salt water; if mucus or common phlegm, it swims and holds together; if pus, it sinks, and on stirring, separates into particles; purulent matter is also opaque, has a greenish color, and is sweet to the patient's taste. Hectic fever takes place, known by a flushing of the face, by a hard, quick and frequent pulse, beating more than one hundred in a minute, and by high-colored urine. The hectic has an exacerbation or increase twice in the day; the first time about noon, which is inconsiderable, and soon suffers a remission; the other in the evening, which gradually increases until after midnight. Each of these fever-fits is preceded by chills, and terminates in profuse perspiration. In the morning, the patient is better, and thinks himself well. The cough and difficult breathing now go on increasing, and oftentimes there is a hoarseness or shrillness of the voice. After this stage is well

established by the appearance of the above symptoms, the patient may die in six or eight weeks. He is, however, able to go about, and when the expectoration of pus is first established, the appetite that was lost in the first stage of the complaint, returns. During the fever fits, a circumscribed redness appears in each cheek, but at other times the face is pale, and countenance dejected.

The *third* period is that of general exhaustion, the countenance is peculiar, and easily recognized by all. The cough becomes more hard and difficult, especially in the morning, when it often produces vomiting ; emaciation is extreme ; diarrhoea comes on, and generally alternates with melting sweats ; the legs swell ; little ulcers appear in the throat ; still the appetite often remains entire, and the patient flatters himself with hopes of speedy recovery, and is forming plans of interest or amusement, when death puts a period to his existence.

Females are more liable to the disease than males, partly from their more delicate organization, and consequent inability to withstand vicissitudes of temperature, partly from errors in dress, particularly of the chest, by compressing it, and of the feet, by imprudent exposure.

The age most susceptible, is between twenty and forty. It rarely proves fatal before the age of fifteen, and the general average of tables shows the greatest number of deaths happen between twenty and thirty ; the next in proportion, between thirty and forty, and then between forty and fifty.

When the disease first appears, there is always considerable hope that if properly treated, it may be stayed in its progress ; and if this can be done once, and the patient in some measure improved in health, a repetition of the same course of treatment may again succeed, from time to time, until the patient has turned the age of thirty, when the danger will, ever after, be constantly lessening.

Spitting of blood sometimes induces the disease, or is the first symptom noticed. In other cases it occurs in the course of the disease, and sometimes terminates it.

CAUSES.

Particular constitutions are more liable to consumption than others, as where an hereditary predisposition exists, or particular formation of body, marked by long neck, prominent shoulders and narrow chest. The remote causes are, constitutional irritability of the lungs; a scrofulous habit, indicated by a clear skin, fair hair, delicate rosy complexion, large veins, thick upper lip, and weak voice. In such subjects tubercles form in the substance of the lungs, resembling in color and consistence crumbs of hard cheese, from the size of a pin's head, to that of a large pea. These tubercles may remain dormant for many years, and probably even to old age, but they are liable any time to undergo changes that will induce consumption either by softening into a matter resembling pus, or by exciting inflammation in the surrounding substance, and in either case causing ulcers that are difficult to heal, and may extend and involve a large portion of lung, and finally prove fatal. In some rare instances, they heal, and present a light-colored puckered scar. Many of these tubercles may ulcerate together, and form one large cavity. The more immediate or exciting causes are preceding disease — as spitting of blood, pneumonia, catarrh, venereal disease, fistula — depressing passions of the mind — intemperance — profuse evacuations, as diarrhoea; or a large ulcer.

TREATMENT.

In the first stage, and before hectic fever begins, or much emaciation appears, and before the lungs are much affected, which a physician can ascertain by examining the chest, there is good reason to hope that the disease may be removed, or may at least have its progress stayed.

The treatment may require to be modified at the outset, according to the prevailing symptoms — bleeding at the lungs, or the long existence of catarrh, or a recent lung-fever, may require the use of some of the remedies mentioned under those heads.

I will mention a few of the most approved remedies in the early stage of consumption.

1. Sailing and change of climate ; these are so important that I have appropriated a separate chapter to their consideration.

2. Exercise in the open air, and travelling on horseback and in open vehicles. Long journeys are best, if the patient can bear them.

3. Light emetics, repeated every second or third day ; white vitriol, in doses of 15 grains dissolved in half a tumbler of warm water.

4. Mild laxatives every other morning ; the best article is probably Epsom salts in small doses.

5. A nourishing, easily digested, unstimulating diet— as milk, cheese-whey, eggs, broths, jellies, porridges, puddings, &c., and other kinds of food which the patient finds by experience to agree with him.

6. A stimulating plaster worn between the shoulders.

7. Expectorants and anodynes, which will allay coughing, and promote expectoration. Among the best of these is the pectoral mixture, or Dover's powders, 8 grains, in two pills. They should be accompanied with the free use of gum water, flax seed tea, &c.

8. A new medicine, called hydriodate of potash, in steadily repeated doses, and the application of an ointment made of the same, over the diseased lung at the part affected.

9. Inhalation of fumes of tar, of chlorine and burnt sponge.

10. Leeches applied over the part of the diseased lung most affected.

11. Cod liver oil seems to take the lead of all remedies hitherto discovered. Patients embarking for a warmer climate should take several bottles. Dose is one to two table-spoonfuls twice a day.

If spitting of blood from the lungs occurs at an early period, there is with it a tendency to inflammation. This must be prevented by measures of the most active kind. If the constitution do not positively forbid it, general bleed-

ing should be employed, especially if the pulse be quick, although the patient may be feeble, since the weakness induced by spitting blood is not occasioned by the quantity that is lost. Blistering should then be employed ; the patient should be confined to a mild diet and quietude, and should avoid speaking, coughing, &c. The bowels are to be moved with cooling laxatives, as Epsom salts, and the patient kept in a uniform temperature, of from sixty to sixty-five degrees, and take half a grain of opium in the evening. After the above evacuations have been made, astringents and refrigerants will be proper ; and when spitting of blood occurs in the latter stages of consumption, these are principally to be relied on. The astringents are elixir vitriol and alum ; the former in doses of twenty-five drops, in a gill of water, every three hours ; the latter in doses of six grains. As a refrigerant, common salt is a very effectual remedy, and should be given when spitting of blood has commenced, in doses of two or three tea-spoonfuls.

In the latter stages of consumption, nothing more can be done than to palliate distressing symptoms. For the cough, take pectoral mixture and opium pills.

SPITTING OF BLOOD, FROM THE LUNGS.

SYMPTOMS.

Sense of weight and oppression in the chest ; dry tickling cough ; difficulty of breathing ; flushed and anxious countenance ; sense of pain and heat referred to the breast-bone ; saltish taste in the mouth ; constant inclination to hawk and cough, by which blood from the lungs is raised. In this respect it differs from the vomiting of blood, the blood in that case being raised from the stomach without cough ; it is moreover sometimes clotted, and often mixed with alimentary matter.

CAUSES.

It may proceed from excess of blood, from a peculiar weakness of the lungs, hereditary predisposition, or bad formation of the breast. It is often occasioned by excessive drinking, running, wrestling, singing, or loud speaking. Sometimes it is the effect of a long and violent cough, and is then the precursor of consumption.

TREATMENT.

Administer table-salt, two or three tea-spoonfuls; or alum, fifteen grains. One of these remedies will be sufficient to arrest the bleeding, for a short time.

Draw blood from the arm on the first attack, and repeat the operation whenever there is any hardness of the pulse or other symptoms of inflammation, or any return of the disease, provided the quantity of blood already lost be not very great.

After bleeding, open the bowels with a dose of Epsom salts, or cream of tartar.

Refrigerants and astringents are then to be taken, as clixir vitriol, ten drops, in a glass of water, every three hours; or nitre, ten grains, dissolved in a glass of water, every three hours, adding to each dose, ten drops of laudanum. Also draughts of cold water with lemon juice.

Carefully avoid heat, speaking, coughing, and every kind of bodily exertion. Use a light vegetable diet.

COUGH.

Commonly, this is only a symptom of some other disease, as of catarrh, consumption, &c. In such cases it is to be regarded in the general treatment of those complaints. In some constitutions, however, there is such irritability of the lungs, that cough is excited on the least exposure to change of weather; and in such, it often remains after every other symptom of a catarrh is removed. When long protracted and violent, there is always reason to fear the consequences, since it is often the precursor of consumption.

TREATMENT.

If the cough be violent, the patient young and plethoric, bleeding will be proper ; and it will be unsafe in such cases to administer opiates, to quiet the cough, till this is done or the stomach and bowels cleansed. In ordinary cases purging alone is often sufficient to prepare the system for opiates, and this may be induced by salts ; or sulphur, with cream of tartar, half an ounce of each, mixed in molasses, and taken in the evening. The cooling mixture is good.

Emetics are among the most effectual remedies for a cough, and one alone is often sufficient to remove it, without the aid of other medicines.

In long protracted coughs it will often be necessary to excite a counter-irritation by a blister or irritating plaster. Burgundy pitch, spread on a soft leather, of the size of the hand, and applied between the shoulders, will serve for this purpose : — Or, take common pitch of the ship, spread in like manner, and sprinkle on it two or three grains of the powder of tartar emetic, and apply it over the breast bone. An irritating plaster should be renewed once a fortnight.

Opiates, combined with sudorifics, may be taken on going to bed, in the form of pectoral mixture, a tablespoonful ; or Dover's powders, eight grains, in pills, accompanied by warm drinks.

Wear flannel next the skin — avoid exposure to sudden changes of temperature, and abstain from ardent spirits, and all strong stimulants, and from animal food.

A S T H M A .

SYMPTOMS.

Tightness across the chest ; difficult breathing ; wheezing ; sense of suffocation ; cough, occurring in fits ; gasping for breath, that obliges the person to sit up until

towards morning, when the symptoms abate and sleep follows. The fits recur for several nights, gradually losing their violence. There is not much danger in asthma, some of the French call it a lease for long life, yet it is apt to appear as a symptom of a dangerous disease of the heart.

TREATMENT.

To prevent asthmatic fits, avoid improper or too much food, especially suppers, exposure to damp cold air, fogs, great heat, or sharp vapors of any kind. When a fit is expected, emetics may ward it off; expectorants should follow, as syrup of squills, antimonial solution and paregoric, equal parts, garlic, strong coffee, ether. Smoking cigars made of stramonium gives great relief. Bleeding will give temporary relief, and in full habits may be tried. In a saturated solution of nitre or salt-petre, immerse some pieces of paper and let them dry, and then burn them near the patient, so that he may inhale the fumes.

DROPSY OF THE CHEST.

SYMPTOMS.

Difficulty of breathing, particularly on any sudden exertion, as in ascending a hill, or stairs, or running ; it is also great during the night, while the body is in a horizontal posture ; distressing sense of weight and oppression at the chest ; palpitation of the heart, sometimes so great as to be seen and heard ; irregularity of the pulse, often intermissions ; paleness of the face ; dropsical swelling of the extremities ; scarcity of urine ; sudden starting from sleep ; fluctuation of water in the chest.

TREATMENT.

Employ the same medicines, that are advised under the head of dropsy.

OF TYMPANY, OR WINDY DISTENTION OF THE BELLY.

The wind may collect within the intestines; or without them, in the cavity of the abdomen. In either case the belly, usually in a few hours, becomes greatly distended, tense, and elastic, like a drum-head. Sometimes the swelling is gradual in its progress and preceded by rumbling of the bowels. There is diminished appetite, thirst and emaciation. Unless the constitution be much impaired, the disease is generally curable.

TREATMENT.

The objects are, 1. To evacuate the air; and 2. To prevent its re-accumulation.

The first object is gained by heating medicines, as ether, anise-seed, peppermint, cayenne pepper, ginger, nutmeg, &c., and by opium; thus, paregoric two tea-spoonfuls, essence of peppermint twenty drops, powder of ginger half a tea-spoonful, mix in sugar, and take every three hours; or, powder of rhubarb and ginger, of each five grains; nutmeg, two grains; opium, half a grain, mixed, to be taken every three hours.

To prevent the re-accumulation of air, after it has been once discharged, use tonics, as decoction of gentian, and avoid all food apt to produce wind. It is a disease of rare occurrence. In forty years' practice, I never have seen more than three cases.

ASCITES, OR DROPSY OF THE ABDOMEN.

SYMPTOMS.

A slow, gradual swelling of the abdomen. When severe, there is thirst, scarcity of urine, and some degree of fever.

CAUSES.

The same as general dropsy, but the most usual is a diseased liver, occasioned either by the sudden application of cold, when the body has been heated, by a long protracted fever and ague, or remittent fever, or by hard drinking.

It differs from tympany, in being almost invariably consequent to some constitutional disease; is more slow and gradual in its attack, the belly is not so elastic, and there is a sense of fluctuation, and generally some dropsical appearances in the lower extremities.

TREATMENT.

The general treatment may be the same as is recommended under the head of general dropsy, to which may be added locally a tight-laced waistcoat, or tight bandages round the abdomen. This will serve to keep the disease in check, till the vessel arrives in port, where, if the swelling be very great, it may be advisable to evacuate the water by an operation, which should be performed only by a skilful practitioner.

The reaccumulation of water is to be prevented by the means recommended under the head of general dropsy.

OF THE LIVER.

ACUTE INFLAMMATION OF THE LIVER.

SYMPTOMS.

Pain in the right side, under the short ribs, which is increased by pressure; sometimes it extends to the chest, then resembling pleurisy, and often there is pain in the right shoulder; irregular state of the bowels; inability of lying on the left side; dry cough.

The inflammation, if not reduced by the seventh or tenth day, usually ends in the formation of matter. In the former case, a bilious looseness ensues; if an abscess

form, it may break inwardly into the chest or abdomen, or outwardly through the skin. The most frequent cause is the hot and unhealthy climate of India and China, and the neighboring islands.

TREATMENT.

Every exertion should be made to reduce the inflammation, as early as possible. Bleed, and purge freely with calomel or blue pills, No. 2, with a table-spoonful of castor oil; apply a large blister over the liver, or part affected with soreness; and abstain from solid food and stimulants. In India, a salivation should be produced as soon as possible, with calomel and opium.

If an abscess form and break, the patient's strength must be supported by quinine, or decoction of gentian and elixir vitriol, 8 drops to a dose. When this disease has once attacked a person in hot climates, as India or China, he will often require the use of the blue pill, or of calomel, for years after. A change of climate is indispensable for the restoration of health. If the abscess point outwardly, and threaten to break through the skin, the part should be poulticed.

CHRONIC INFLAMMATION OF THE LIVER.

The attack of this is generally so gradual, and the symptoms at its commencement so obscure, as to pass long unnoticed. There is dejection of mind; a loss of appetite; rumbling in the bowels; sense of weight and distention in the stomach; obstinate costiveness; clay-colored stools; jaundice; and oftentimes an enlargement of the liver, that can be felt.

TREATMENT.

Induce a slight spitting with mercury, applied by friction, and given internally; thus, calomel pills, or six grains of blue pill, every night and morning, and rub

mercurial ointment, of the bulk of a nutmeg, on the inside of the thighs, every evening.

Apply to the part a plaster of mercury or of pitch, of the size of the hand and thickness of a dollar.

SEA-SICKNESS.

With very few exceptions, this attacks all persons, on their first voyage ; and the degree of it is generally inversely proportioned to the size of the vessel, it being most violent where the vessel is small, and least so in large vessels, on which the waves make but slight impression. Some persons, however, are more liable to sea-sickness than others. Those in the prime of life, and of a fair, light complexion, have been remarked to be most susceptible of its attacks, while old persons, and those of a dark complexion, suffer least. The duration of sea-sickness is very uncertain, being generally not above a day or two ; but in many cases it continues for weeks, or even months, and there are some seamen who always suffer an attack in tempestuous weather, even after having followed the sea for many years.

TREATMENT.

Though time is perhaps the only cure, various remedies have been directed to alleviate this complaint. In slight but lingering cases, in which nausea and headache continue a long time, without vomiting, it will cut short the symptoms to cleanse the stomach and bowels by a draught of sea-water ; and a tea-spoonful of ether, in a glass of water, will often relieve slight cases. The little food taken at a time should be eaten cold and highly season'd, and the patient should keep upon the deck, with his face to the windward.

In severe cases, when no longer able to keep upon the deck, try a recumbent posture, resting the head on a book, or other hard substance, and continue as much as possible in a uniform position, with the eyes closed, and

the thoughts engaged on some interesting and agreeable subject, till sleep comes on, or till vomiting has ceased. When the system has in this manner become accustomed to the rolling in one posture, and sickness has ceased, try another. In this way the rolling of the ship will cease to excite vomiting in a much shorter time than when the posture is continually changing.

Dr. Johnson ascribes sea-sickness chiefly to the impression produced on the optic nerve, and transmitted to the brain, by the continued motion of the vessel, sails, shrouds, &c., and thinks that by keeping the eyes closed, this disagreeable nausea is frequently prevented. Dr. Maxwell regards it as a disease of debility, and recommends stimulants, such as brandy, and either to walk about, or to keep in a horizontal posture.

ON THE STOMACH.

INFLAMMATION OF THE STOMACH.

SYMPTOMS.

Fever; anxiety; heat and pain in the space between the pit of the stomach and navel, increased when any thing is taken into the stomach; vomiting; great thirst; hiccup; coldness of the extremities; small, frequent, hard, and contracted pulse; prostration of strength; cold, clammy sweats. One of the most certain signs of this disease, is the sense of pain which the patient feels upon taking any kind of food or drink, especially if it be too hot or too cold.

CAUSES.

Cold liquids, drank when the body has been heated by exercise; the operation of poisons taken into the stomach, as arsenic, or of acrid substances acting chemically there; something acting mechanically and lacerating the coats of the stomach; transfer of gout from the toe.

TREATMENT.

As twelve hours may, in some instances, carry off the patient, no time is to be lost in applying the remedies, which are :

1. Copious bleeding ; to this the smallness of the pulse will be no objection, for it will become fuller by the loss of blood.
2. A large blister, or mustard plaster, applied over the stomach.
3. The use of the warm bath, even until fainting comes on.
4. Mucilaginous drinks in very small quantities, and often, as flax-seed tea, barley-water, and gum arabic, dissolved in water, with a few drops of laudanum.
5. Clysters of warm water.

Where poisons have been taken intentionally, or by accident, as opium, arsenic, corrosive sublimate, verdigris, &c., administer an emetic immediately, of the most active kind, as white or blue vitriol, fifteen grains, or so much as can be heaped on a ten cent piece, dissolved in a gill of water, adding twenty grains of ipecac : drink freely afterwards of diluting liquors, as barley-water, toast-water, flax-seed tea, and milk.

VOMITING OF BLOOD.

SYMPTOMS.

Vomiting of large quantities of clotted blood, and sometimes mixed with alimentary matter, generally unattended by cough, and preceded by a sense of weight and dull pain, or anxiety, a little below the pit of the stomach.

CAUSES.

Generally, some external violence ; or some mechanical injury to the stomach itself, or some great strain of the body.

TREATMENT.

If accompanied by heat of the skin, or other symptoms of fever, or if the disease can be traced to violence or exertion, bleed and keep the patient cool, avoiding all causes of irritation. Unless the bleeding from the stomach become alarming from its quantity, it will be advisable not to arrest it by astringents, but suffer it to stop of itself. The day following, give a mild laxative, as of cream of tartar, castor oil, or a small dose of salts, to remove the blood from the bowels.

Subsist for two or three days on light food, as barley, rice, fresh broth, etc. When inflammation has subsided, give decoction of bark, or quassia, in a dose of two tablespoonfuls every three hours, adding to each dose ten drops of clixir vitriol.

OF THE INTESTINES.

INFLAMMATION OF THE INTESTINES.

SYMPTOMS.

Severe pain in the abdomen, increased upon pressure, and shooting in a twisting manner round the navel; hardness of the abdomen; obstinate costiveness. There is sometimes vomiting or straining at stool, according as the inflammation happens in the superior or inferior portion of the intestine. The pulse is quick, hard and contracted, and the urine high-colored, and there are other symptoms of fever, with great prostration of strength.

CAUSES.

All those inducing inflammation of the stomach, also strangulated hernia, colic, long-continued costiveness.

It is distinguishable from colic by being accompanied with fever, and by increase of pain from pressure.

TREATMENT.

The indications of cure are,

1. To reduce the inflammation by bleeding once or

twice from the arm, by a large blister laid over the belly, by the warm bath, and by total abstinence from stimulating articles of diet or medicine.

2. To move the bowels by gentle purges, as castor oil, salts, or cream of tartar; and by elysters of salt water.

CHOLERA MORBUS, OR VOMITING AND PURGING.

SYMPTOMS.

A frequent discharge of bile by vomiting and purging, accompanied by pain and distention of the stomach, thirst, great anxiety, cramp in the lower extremities, cold sweats, hiccups, and not unfrequently death within the space of twenty-four hours.

CAUSES.

Exposure to excessive heat, or sudden transitions from heat to cold; hence more frequent in autumn from exposure to cold evening air, after very hot days; large quantities of food of difficult digestion; the colder fruits, as cucumbers, melons, &c.; active and violent purges; poisons; putrid animal food, as lobsters; exposure to the effluvia of putrid animal and vegetable substances.

When it terminates favorably there is a gradual diminution of the symptoms, especially of vomiting, followed by sleep or a gentle moisture on the skin. The disease, when protracted to the fifth, sixth, or seventh day, seldom proves fatal.

Unfavorable symptoms are strong cramps in the legs or arms; convulsions; great prostration of strength; cold, clammy sweats; intermitting pulse; foetid vomiting; and great distention of the abdomen.

TREATMENT.

The first thing to be done is to remove offending substances from the stomach and bowels. This, however, has in most cases been already effected by nature. If vomit-

ing and purging have therefore occurred frequently, endeavor to allay the existing irritability by opium and diluting drinks. Begin with one tea-spoonful of laudanum, mixed in gruel or tea, and repeat the dose every half hour till the vomiting is arrested. An excellent remedy is powdered sugar, chalk, and gum arabic, rubbed together—a table-spoonful of each in a gill of water till they form a sort of cream, add four tea-spoonfuls of laudanum, and give a table-spoonful every half hour till the sickness abates; give at the same time thin gruel, arrow-root, or chicken-broth frequently, but in very small quantities. Laudanum and spirits of hartshorn, equal parts, mixed, are to be rubbed over the stomach constantly.

When, in spite of this treatment, the vomiting continues unabated for two or three hours, administer laudanum in clysters, thus:—

Take laudanum, a half table-spoonful; water, one pint, mixed; inject one half, and direct the patient to retain it as long as possible; when discharged, administer the remainder. A large blister should now be applied over the stomach, the feet and legs bathed in warm salt water; hot applications made to the feet; opium given in pills, in a dose of five grains every hour, and the diluting drinks continued. The effervescing mixture * should now be given every hour, adding to each dose twenty drops of laudanum.

After the vomiting is allayed, give a mild purge, such as is most agreeable to the patient.

SPASMODIC OR ASIATIC CHOLERA.

As this disease commonly proves fatal even in the hands of skilful physicians on shore and in hospitals, where every known or supposed remedy is at hand, discouraging must be the prospect of treating it successfully on shipboard, by persons who are comparatively ignorant of its nature, and of the virtues of medicines. Still it

* See Appendix.

is the author's duty to furnish the best advice he can upon the subject.

Cholera may be divided into three stages.

1st. A premonitory or threatening stage ; 2d. When it is fully formed ; 3d. A stage of collapse, or sinking.

The first stage usually consists in a loose state of the bowels, which may continue several days, but is often of very short duration ; sickness or uneasiness of stomach, gripes, or severe pain at the pit of the stomach, are frequently added. The matters passed are such as are observed in ordinary diarrhoea and vomiting ; slight cramps may also be felt, and loud quirking of the bowels.

The second is characterized by frequent vomiting and purging, almost always of a pale, whitish fluid, in great quantities ; by painful cramps of feet, legs, hands, arms, belly, or other parts ; a painful burning at the pit of the stomach ; the features are contracted and sharp ; the eyes sunk and surrounded by a dark circle ; apprehension, languor and suffering are depicted in the face ; the pulse, scarcely quickened, is feeble ; the surface, especially hands and feet, colder and perhaps of a darker color than natural ; there is great thirst, while drinks of every kind are generally vomited almost as soon as taken ; the breathing is slow, or not much disturbed ; the voice feeble, whispering, husky ; the secretions in general are suspended ; urine is not, apparently, formed ; hiccup is not unfrequent ; there is great tendency to sinking, and the person seems older than he really is. In some few cases, there is not purging ; in some, scarcely any vomiting or cramp, the disease being chiefly marked by a painful load, or tightness of chest and stomach, and a rapid sinking.

The third stage, that of collapse, gradually succeeds to the second. In it the person seems to relapse into a state of tranquil heedlessness ; he will answer questions correctly, even just before death, but with slowness ; the pulse is lost at the wrist and other parts ; the dark or blue color is more decided, yet in many this symptom is not observed ; the vomiting and purging cease, or become less frequent ; "the skin is very cold, and generally damp, giving to the

touch the sensation felt from handling a frog ; " the tongue, which is often furred, is cold ; even the breath is cold ; the fingers, hands and other parts lose their usual plumpness, and become shrivelled ; the patient tosses about incessantly, the breathing becomes laborious, and death takes place, in most cases, without any struggle.

Such is the usual course of the disease, if left to itself, many varieties occurring in quickness and intensity. The first stage may be so short as to seem wanting, or consist only in pain and cramp at the pit of the stomach. The second stage may not endure an hour, or extend to two or three days. The entire may end in death in two or three hours, or not for several days ; a long premonitory stage is not always followed by a mild form of cholera.

When medicine is administered, and in rare cases without it, the progress is not so certainly towards death. In general *a speedy convalescence* may be predicted if attention be given in the first stage. A large proportion of deaths is clearly owing to the want of immediate assistance.

If the first stage has been neglected, either by reason of its shortness, or its not causing alarm, not an instant should be lost ; the friends of the patient must not yield to the same fatal listlessness that is observed to seize on the person attacked. By proper means it is still probable that the natural tendency to collapse may be averted, the evacuations checked, the spasms moderated, and health restored. These changes may, as in the first stage, be speedy, the return to health being often preceded by tranquil sleep and free perspiration.

Treatment in the first stage. — If it consist in purging, with occasionally slight vomiting, give a pill or a powder of calomel and opium, four grains of the former to one of the latter, and repeat as often as the stomach rejects it ; and if the stomach retain it, repeat it every hour until a bilious discharge is produced, or the patient falls asleep. In order to hasten the sleep and to stay the rolling and quirking of the bowels, the patient should remain in one posture in bed, warmly covered with blankets, and take no

drinks except a swallow of toast water or warm tea and a table-spoonful of brandy, with half a tea-spoonful of laudanum every fifteen minutes. Should the disease not cease in an hour or two by sleep, but tend towards the second stage, with increased frequency of discharges, give three to five grains of acetate of lead, or of powdered alum, every two hours, and apply strong stimulants over the abdomen, as a plaster made of mustard and pepper-sauce or sharp vinegar, and rub the extremities with mustard and Cayenne, or with spirits of turpentine.

In the second stage.—There should be administered injections of thin starch or gruel, containing two tea-spoonfuls of laudanum to a pint, and repeated often; the calomel and opium repeated, mustard applied extensively by mixing it in spirits of turpentine and pepper-sauce, and rubbed in hard over the limbs and trunk; cloths dipped in hot water should be constantly applied, of greater heat than the attendants can bear their hands in; pieces of ice or cold water may be swallowed often.

Treatment of the third stage will be a continuation of that of the second stage. Cayenne may be added to the calomel and opium, or aqua ammonia, (hartshorn) half a tea-spoonful in cold water, either a tea-spoonful.

The disease is not contagious, but endemic. It is apt to spread among a crew or other community, because they are alike exposed to one and the same atmospheric cause, but they do not communicate it to each other.

COLIC.

SYMPTOMS.

The principal symptom is pain about the navel, generally violent, shooting and twisting, occurring in fits, during which the patient is disposed to bend down and press upon the part. The bowels are commonly costive, sometimes there is nausea with vomiting, and bitter taste in the mouth.

CAUSES.

Cold applied to the surface of the body, especially to the feet and belly ; crude or indigestible food ; redundancy of bile ; obstinate costiveness ; flatulency ; certain metallic poisons, as lead and copper. Those whose bowels are easily disordered, are liable to an attack of colic, from remaining in a room newly painted.

TREATMENT.

The first step is to allay the pain by opiates. Give opium and powder of camphor, of each two grains, mixed, or laudanum and spirits of camphor of each a tea-spoonful, every half hour, till the pain is relieved.

Immediately after the second dose of opium, give a purgative of castor oil, three table-spoonfuls, and if it fail to operate in three hours, give a fourth table-spoonful. Or, give such other purgative as is most agreeable. It will aid the operation of the medicine to dash cold water on the abdomen.

In obstinate cases it will be necessary to give still more active cathartics, as calomel and jalap powders, repeated often — spirits of turpentine added to castor oil is good, and to administer injections of salt water.

Should vomiting ensue, and the pain still continue, apply a large blister over the abdomen, and immerse the patient in a warm bath.

For a slight wind colic, a little spirits of camphor, or a few drops of peppermint, will often be sufficient.

DIARRHœA, OR LOOSENESS.

SYMPTOMS.

Frequent and copious evacuations by stool, generally with griping ; oftentimes there is nausea and vomiting ; thirst ; bitterness and dryness of the mouth. If the disease continue, it produces great emaciation.

CAUSES.

The application of cold to the surface of the body, especially if accompanied with moisture ; acrid, indigestible

food ; great quantities of acid or cold fruits ; putrid substances. In the Mediterranean, it is often caused among sailors by drinking freely of new wine.

The crew of the frigate Java, while lying at Syracuse, 1816, were put upon the use of new wine, in place of spirits, and nearly every man suffered an attack of diarrhoea. In other warm climates, as the West Indies, spruce beer, and other fermented liquors, often occasion it ; and in all climates, the sudden change from the long continued use of salt provisions to fresh meat and vegetables.

TREATMENT.

The cure consists,

1. In obviating the cause.
2. In suspending the inordinate action of the bowels.
3. In restoring their strength and healthy action.

Irritating causes are often lurking in the intestinal canal, and must be removed :

1. By a cathartic, as rhubarb, magnesia, or castor oil, in a common dose, or by a draught of sea-water.
2. By diluting drinks, as flour gruel, flax-seed tea, or barley-water.

After the bowels have been cleansed by a cathartic, their inordinate action is to be suspended :

1. By opium, conjoined with some medicine that will produce sweating ; thus, opium, from one to two grains, ipecac, three grains, mixed in syrup, or molasses, and taken every three hours ; or Dover's powders, eight grains in two pills.

In slight cases of diarrhoea, it will be sufficient, after cleansing the bowels, to take an opium pill in the evening, or twenty drops of laudanum.

2. By astringents, as kino, twenty grains ; or lime-water, from four to six table-spoonfuls ; or rhubarb, three grains ; or powdered alum, two grains every three hours.

When the disease proceeds from some error in diet, it will often terminate in a short time of itself, or perhaps the most that may be required in such cases will be a gentle laxative and gruel.

To restore the strength :

In severe cases where debility of the parts exists, their strength may be restored ; 1. By a decoction of bark, and other vegetable bitters, as gentian in decoction, &c. 2. By moderate exercise. 3. Light nutritive diet, and port wine should be substituted for malt liquors, as a common drink.

The water of particular places often causes diarrhoea in ships' crews. The frigate Guerriere took a supply of water from the river Neva in Russia, and when it was used by the crew, about every sailor in the ship was affected with purging. In this instance and some other similar ones, I found that a pint of quick lime poured into each water cask corrected its purgative quality. Soaking burnt bread, or quenching burning coals in it, produced the same effect.

The last of the ebb-tide furnishes water, both at Cronstadt and Canton, that is not purgative.

DYSENTERIA.

SYMPTOMS.

Severe gripings, often preceded by loss of appetite ; sickness at the stomach ; costiveness, and chills ; frequent inclination to go to stool ; heat and irritation in the fundamennt ; appearance of stools various, being slimy, sometimes bloody, in this respect differing from those in diarrhoea, which are like common stools, only of a thinner consistence. Sometimes hardened lumps are discharged in the slime, and then the patient is momentarily relieved of his gripings. In some cases a film of hardened mucus is discharged, resembling a coat of the intestines. There is violent straining at stool, and the patient feels a bearing down, as if the bowels were falling out, and sometimes a part of the intestines is actually protruded. Great debility very soon ensues, with a quick and weak pulse. Sometimes it terminates fatally, and it is most severe when epidemic. In India and the neighboring islands, it differs in character from the common cases of temperate regions, the

liver being more affected, and pouring out an excess of bile, often with blood, whence it is called bloody flux.

CAUSES.

It may be occasioned by whatever obstructs perspiration, as a damp bed, wet clothes, &c.; also by unripe fruits; bad air; moisture succeeding intense heat; unwholesome or putrid food; the effluvia of vegetable or animal substances, in a highly putrid state. Persons living in crowded apartments, as in ships, are more liable to attacks.

TREATMENT.

Cleanse the bowels with calomel, ten grains, mixed in a table-spoonful of oil. In mild cases with oil alone, two table-spoonfuls, to which add one tea-spoonful of laudanum.

Follow the use of the above medicine, with frequent and copious draughts of diluting drinks, as flour gruel, barley-water, flax-seed tea, &c.

After clearing the bowels, give Dover's powder, in pills, eight grains every three hours, and a table-spoonful of oil every day, until the disease yields.

In severe cases, where great pain and inflammation exist, after the stomach and bowels are cleared, a blister may be applied over the abdomen, and fifteen or twenty drops of laudanum given every hour in the patient's drink, till relief is obtained. In less severe cases, instead of the blister, it may be sufficient to bathe the bowels with hot peppered vinegar, or hot water.

Bleeding is a doubtful remedy in dysentery, and unless the ease be severe and the constitution vigorous, should not be employed.

When there is great pain in the lower part of the abdomen and fundament, and the evacuations frequent, administer elysters of flax-seed tea, or barley-water, one pint, and laudanum a table-spoonful. Half of this is to be injected at a time, blood warm, and retained by the patient as long as possible.

From the first attack the patient should abstain from solid food, and take freely of gruel, barley-water, arrow-

root, flax-seed tea, or solution of gum arabic. The pulp of a roasted apple, or other ripe fruit, may be taken.

At a more advanced period of the disease, when the frequency of the evacuations seems rather to proceed from a weakened and relaxed state of the bowels, than from any active inflammation, the decoction of gentian, or of quassia, may be given, every three hours, beginning with a dose of a table-spoonful and increasing gradually. It may be mixed in gruel or barley-water ; or give one grain of quinine, every three hours.

When the pain and inflammation are abated and the stools are more natural, commence with animal broths, as of mutton, chicken, &c., at first thin and unseasoned, but gradually increasing their richness as the disease declines.

Since the first edition was printed, I have accidentally met with a prescription in the hands of an irregular practitioner which, so far as I have known, has never yet found its way into any printed medical book — I have made repeated trials of it, as have my professional brethren, and no medicine in our hands has, in all common cases, ever proved so successful. It is this. Mix with a small phial of water, as much sulphate of zinc or white vitriol, as the water will dissolve ; take one part of this and five parts of laudanum mixed — give to an adult fifteen drops every three hours, increasing the dose one drop daily — a dose of oil should precede the use of it, and should be repeated every other day, without omitting the drops.

In India, where the disease is very prevalent and destructive, large doses of calomel, say twenty grains, are given with a grain of opium, every six hours, and once in twenty-four hours a dose of castor oil.

When this disease appears on board ship, it is of the first importance to prevent its being communicated to all hands on board ; to do this, the most assiduous attention should be paid to cleanliness. The evacuations of the sick must be immediately thrown overboard, and the buckets washed. Those who are well should avoid the night air as much as possible, shun putrid smells, and avoid all communication with the sick, and the privy to which the sick go.

PILES

Are painful swellings at the lower extremity of the intestine or fundament, either internal or external. The internal are most painful, especially while at stool. When external, they vary much in size, being sometimes as large as a nutmeg. Frequently they break and discharge blood, which relieves the pain: the swelling, however, does not then entirely disappear, and soon increases again to its former size.

CAUSES.

This complaint may proceed from habitual costiveness, plethora, hard riding on horseback, strong aloetic purges, or sitting on damp ground.

TREATMENT.

As costiveness is the most frequent cause of piles, this must be obviated by mild laxatives, and none appears to be more efficacious than the use of the powder of sulphur combined with an equal quantity of cream of tartar, mixed in molasses, in a dose of a table-spoonful every evening. Or, take a gill of sea-water every evening. Another excellent internal remedy is balsam of copaiva twelve drops, given twice in twenty-four hours, dropt on sugar or in a glass of water. Aloetic purgatives should be avoided, and all family pills.

As an application to the tumors, various ointments and washes are recommended, among which are the following.

Sulphur and hog's lard, equal parts, well mixed; nut-galls and hog's lard, equal parts; mercurial ointment, or fresh butter; also, tar-water, alum-water, decoction of oak bark, lead water. A favorite application with many sailors is wet oakum.

If the piles continue after the above treatment, and are very painful, apply leeches to the part, or if they are not to be had, make a small puncture in the tumors with a lancet, and after discharging their contents, apply warm poultices to the part.

When the bleeding piles return periodically, once in three or four weeks, the discharge may be considered salutary, and should not therefore be stopped, unless it becomes so excessive as to weaken the patient, in which case the decoction of gentian or of quassia may be taken in doses of three table-spoonfuls every two hours, adding to each dose ten drops of elixir vitriol. Alum or lead water, dissolved, added to a decoction of oak bark, is to be applied to the part, and injected in small quantity into the intestine, by means of a penis-syringe.

In some instances, a falling down of the intestine will be a troublesome attendant on the piles, in which case the intestine must be immediately replaced after every evacuation, by pressing gently upon the part with the fingers, until it is reduced; and its return must be prevented by astringent applications, as alum dissolved in vinegar, decoction of oak bark, sugar of lead dissolved.

All the known causes, particularly costiveness, both during the disease and afterwards, must be studiously avoided.

FISTULA.

When the tumors mentioned in the foregoing disease have been suffered to inflame to a considerable degree, and by intemperance or ill treatment to ulcerate, a fistula is formed. In almost all cases of this disease, whether induced by piles, or other causes, the knife of a surgeon will be requisite. While at sea, however, and out of the reach of surgical aid, the patient, immediately on the least apprehension of a fistula, should keep his bowels open with mild laxatives of cream of tartar and sulphur, or small doses of castor oil taken every day; should avoid every thing of a stimulating nature in food or drink, and take great care to irritate the part as little as possible, applying at the same time lead-water externally. When in spite of this the inflammation proceeds on to ulceration, and pus is discharged from the fundament in such large quantities

as to debilitate the patient, he should take bitters and wine, and support his strength with rich diet, till he can reach medical aid.

HERNIA, OR RUPTURE.

The part in which hernia most commonly appears is the groin. Generally the tumor takes a direction towards the scrotum, but sometimes it pushes into the front of the thigh ; the former is called *inguinal*, the latter *femoral* hernia. The contents of the tumor are a part of the intestine, or a portion of the omentum or caul, or both together.

CAUSES.

The most frequent causes in adults are blows, violent exertions of strength, as lifting or carrying heavy weights, straining at stool, jumping, running, &c. When a rupture is produced by bodily exertion, the tumor is formed suddenly, and is generally attended with a sensation of something giving way at the part, and with considerable pain.

TREATMENT.

Reduce the tumor immediately by the hand. For this purpose the patient should be placed on his back, and the foot of the bed be elevated about twenty inches higher than the head, the thighs should be bent toward the body, and that on the same side with the rupture, inclined inwards. The pressure, which is made on the tumor by the hand of the operator for its reduction, should always be directed upwards and outwards for inguinal hernia, and first backwards and then upwards in feinoral hernia. If the tumor be not sooner removed, the pressure may be continued half an hour, but no violence is to be used, as it will tend greatly to aggravate the inflammation,— and the pressure, when it becomes painful, should for the same reason be discontinued. Should these efforts fail of success, the patient must be bled, and then another trial be made, and

on failure of this also, use the warm bath, and repeat the effort while the patient lies in the water. The next remedies to be employed are, the coldest applications to the tumor, as ether or pounded ice, and where these cannot be obtained, a mixture of equal parts of nitre and common salt, in the proportion of half a pound of the mixture to a pint of water, kept constantly applied to the tumor. Finally, try an injection of tobacco made by boiling one drachm of tobacco in a pint of water for ten minutes. When all these means fail, if a surgeon can be had competent to perform the operation for strangulated hernia, he should be called, and always within the first twenty-four hours.

With the view of guarding against the dreadful consequences of a strangulated hernia, a ruptured person should immediately procure a well-adapted elastic spring truss, and wear it during the day, without intermission.

DISEASES OF THE URINARY ORGANS AND GENITALS.

OF THE URINARY ORGANS.

INFLAMMATION OF THE KIDNEYS.

SYMPTOMS.

Fever, pain in the small of the back and thence shooting downward; drawing up of the testicles; numbness of the thigh; vomiting; commonly at first a deep red color of the urine, which becomes pale and colorless as the disease increases, and is discharged very often with pain and difficulty; costiveness and some degree of colic; pulse frequent, hard and small.

CAUSES.

Acrid substances acting on the kidneys; external injury; long continued and violent exercise on horseback; violent

exertions, strains, &c.; but the most frequent cause is calculi or gravel, lodged in the kidney, or in the duct that leads from it to the bladder.

TREATMENT.

1. Bleed from the arm, and repeat the operation according to the urgency of the symptoms. 2. Administer cathartics of the oily kind, as castor or sweet oil, and give clysters of barley-water, or flax-seed tea. When the pain is very great, administer a tea-spoonful of laudanum in the clyster. 3. Give copious draughts of diluting drinks, as flax-seed tea, and thin gruel, &c. 4. Let the warm bath be repeated according to the violence of the pain. The back should be bathed with flannels dipped in hot water.

INFLAMMATION OF THE BLADDER.

SYMPTOMS.

Fever, acute pain, tension and tumor in the region of the bladder, frequent and painful discharges of urine in small quantities and inflammation in the fundament; sometimes there is complete obstruction to the passage of the urine; severe cases are attended by vomiting.

CAUSES.

Meehanical injury; gravel; the inflammation of a severe clap extended along the urethra to the bladder; in some persons sudden cold will cause it.

TREATMENT.

In severe cases adopt the same treatment that is recommended in inflammation of the kidneys. In slight cases, proceeding from cold, or a clap, it may be sufficient to open the bowels. Injeet the urethra and bladder with flax-seed tea, or barley water, milk warm. Five or six penis-syringes full are to be frequently thrown in at a time, in order that some may pass into the bladder, where it is to be retained

as long as possible ; and some kind of fluid is to be drank in frequent and copious draughts. After the bowels have been moved, laudanum may be given in doses of forty to sixty drops.

BLEEDING FROM THE BLADDER, OR BLOODY URINE.

SYMPTOMS.

When not the effect of violence, it is preceded by a sense of weight and pain in the loins. It is distinguished from the high colored urine attendant on many diseases, by the deposit of a coagulum on the bottom of the vessel, and by its staining linen of a red color.

CAUSES.

It is most frequently caused by gravel in the kidneys, but sometimes arises from external violence or great exertion.

TREATMENT.

If the disease be the consequence of injury, bleed and give a dose of Epsom salts, or of cream of tartar ; also, frequent and copious draughts of flax-seed tea, or barley-water, elixir vitriol, twenty-five drops every two hours, and an opium pill or sixty drops of laudanum, every four hours, till bleeding is arrested. If the discharge of blood be very great, give alum four grains every two hours, dissolved in a gill of water, or sal nitre ten grains.

If no violence has been sustained to cause the discharge of blood, a vein need not be opened, but the other treatment must be adopted.

INCONTINENCY OF URINE.

SYMPTOMS.

In this disorder the urine passes off involuntarily by drops, but does not exceed the usual quantity, as in diabetes, nor is the disease attended with pain. It is rather troublesome than dangerous.

CAUSES.

Sometimes it proceeds from blows and bruises, or is the effect of fever, or of strong stimulants on the bladder. In old people it may often be owing to a palsy of the neck of the bladder.

TREATMENT.

The most proper remedies are general tonics, as quinine, or bitters, elixir vitriol and cold bath. Perhaps the most effectual remedy ever used is a blister applied to the lower extremity of the backbone. It sometimes cures cases of long standing in twenty-four hours. Until these or some other means succeed, the patient should wear a sponge or bladder, to prevent excoriation of the parts.

OF STRANGURY, OR SUPPRESSION OF URINE.

It is called *suppression*, when there is an entire stoppage of urine ; and *strangury*, when there is a frequent inclination to void it, and it is discharged in drops, with pain and difficulty.

CAUSES.

This complaint may proceed from a variety of causes ; as inflammation of the kidneys or bladder ; gravel, or small stones obstructing the urinary passages ; a spasm or contraction of the neck of the bladder ; acrid injections ; cantharides, either taken internally or absorbed from a blistering plaster. The particular symptoms attending it commonly designate the seat of the disease.

TREATMENT.

In all cases of suppression of the urine, it will be advisable to bleed from the arm, in quantity proportioned to the strength of the patient, and the urgency of the symptoms. This should be followed by gentle purgatives of salts, oil, or cream of tartar, by warm injections of barley-water, or

flax-seed tea, by the warm bath, the patient sitting up to the middle in water, and by flannels dipped in hot water, and applied to the abdomen. Administer repeated doses of opium, or of laudanum a tea-spoonful, mixed in warm drink, and repeat the dose every half hour, till it relieves. The application of ice to the feet and legs is highly recommended.

If a suppression of urine do not yield to the above treatment, introduce a catheter or bougie, as directed under the head of Operations, and draw off the water.

The diet, during the continuance of the complaint, should be of a light kind, and taken in small quantities.

GONORRHœA, OR CLAP.

This disease is communicated from one individual to another by sexual intercourse, and is generally considered a local affection. It sometimes commences in two or three days after the infection has been received, and at others, not before the lapse of several weeks; but it commonly makes its appearance in between six and ten days. The first symptom is an itching at the orifice of the urethra, or urinary passage, and shortly after, there is a discharge from the part, of a thin, transparent matter, which soon becomes white, and afterwards changes to a yellow or green color. A slight degree of redness and inflammation begins to appear about the lips of the urethra, and a heat and smarting pain in most cases are felt in every attempt to make water. There is commonly a sense of fulness about the end of the penis, and frequently a soreness along the course of the urethra, accompanied with more or less pain in erection.

In severe cases the erections become more frequent and lasting than in health, particularly when the patient is warm in bed, and the penis is curved downward with considerable pain, which is called *chordee*, and this is sometimes attended with a slight bleeding at the time of passing the urine.

When inflammation runs high, the heat and scalding of the urine, as well as the chordee, are extremely troublesome ; there is a constant inclination to discharge urine, which is often attended with much difficulty, and sometimes it is rendered only by drops. There is also a sense of pain, heat, and fulness about the testicles and fundament, and the running is very copious, of a greenish and sometimes a bloody color.

But in ordinary cases, where proper attention is paid to the disease, few or none of the last mentioned symptoms occur, the disease merely consisting in a slight heat and scalding in making water, and a running, all which gradually subside in ten or fifteen days.

In consequence of violent inflammation, the prepuce or foreskin sometimes becomes so swelled, that it cannot be drawn back ; which symptom is called a *phymosis* : or that being drawn behind the glans or head of the penis, it cannot be brought forward ; which is known by the name of *paraphymosis*. The treatment of these will be given hereafter.

A swelling of one or both testicles often arises in gonorrhœa, in consequence of cold, severe exercise or astringent injections. (For the treatment of this, see Swelled Testicles.)

TREATMENT.

On the first appearance of the clap abstain from every kind of high seasoned food, as well as stimulating liquors, and subsist on a mild, easy diet, as of milk, vegetables, broths, puddings, rice, &c., and commence taking freely of barley-water, flax-seed tea, or a solution of gum arabic, or water gruel. Avoid all severe exercise, particularly walking, or riding on horseback, as well as venereal intercourse, and even lascivious thoughts.

During the inflammatory stage use injections of a mild and soothing kind, as flax-seed tea, new milk, or barley-water, blood warm, repeating them as often as every two or three hours. In this stage, also, it is of importance to

move the bowels every two or three days, with a mild purge, as castor oil, cream of tartar, or salts.

If chordee be troublesome, take a grain of calomel and opium, on going to bed, and apply frequently to the extremity and along the underside of the penis, rags wet with a solution of sugar of lead, made with one drachm of the lead to a pint of water.

When the inflammation runs very high, is attended with great pain and a constant inclination to make water, inject flax-seed tea and laudanum into the rectum, in the quantity of one gill of the former to a tea-spoonful of the latter, and continue the diluting drinks above mentioned.

With this treatment relief will be obtained immediately, and the inflammation, in most cases, subdued in two or three days. After which, instead of the above, it will be advisable to use for the urethra one of the following injections :

Sugar of lead and white vitriol, of each six grains, water one pint ; or ten grains of either may be used separately.

These injections should be used cold every three or four hours. If employed before inflammation be subdued, they are apt to cause a swelling of the testicles.

There are many practitioners, even at the present day, who maintain that gonorrhœa, or clap, and the venereal disease or pox, are one and the same disease, arising from the same infectious matter ; and recommend the use of mercury alike in both. On this subject, ten years' very extensive practice in these complaints, on board ships of war, and thirty on shore, have served to convince me, that the two diseases are essentially different, and that a mercurial action, which may in some cases be necessary in the cure of pox, is of no sort of utility in gonorrhœa.

Another mode of treating clap, and which I have more generally adopted of late years, is to give balsam copaiva, twenty drops, three times a day, on sugar or dropped on the surface of a wine-glass of water, to which a tea-spoonful of spirits of nitre may be added — this, with a very abstemious course of living, and mild laxatives daily, as Epsom salts, will alone effect a cure without the use of

injections. Where the stomach recoils at the taste of copaiva, it may be taken inclosed in capsules.

GLEET.

When a clap is neglected, or ill treated, or the patient irregular in his habits, it may continue for many months, and on subsiding leave a weakness and mucous discharge from the urethra, called a gleet ; it is unattended by pain or scalding, in making water, and is the consequence of relaxation.

TREATMENT.

It may be treated by stimulating diuretics, as balsam of copaiva, and spirits of nitre, in a dose of twenty drops of the former, to a tea-spoonful of the latter, in a wine-glass of water, three times a day ; by injections of blue or white vitriol and alum dissolved in water, made of such strength only, as to irritate the part in a slight degree. They are to be used four times a day, and continued many days after the running has ceased. Cold water or ice should be applied near to the seat of the affection, night and morning.

Gleets often, if not always, are owing to a stricture or contraction of the urethra.

STRICTURE.

Another evil to be apprehended from the long continuance of clap, especially if it has been attended with inflammatory symptoms, or has recurred frequently, is the taking place of stricture in the urethra, causing a partial and sometimes total closure of the passage. This complaint is particularly apt to follow those cases of clap, which are apparently cured, but which break out from time to time, in consequence of some irregularity in the patient's habits, as drinking freely of stimulating liquors, taking too much exercise, venereal gratification, &c.

TREATMENT.

The daily use of a bougie. Previous to its introduction, it should be slightly curved, and covered with oil, to prevent irritation. It ought to be worn at first for about half an hour, gradually increasing the time, from day to day. The size of the bougie is also to be increased, as the resistance to its passage becomes diminished.

In those cases where a bougie, even of the smallest size, cannot be passed, as likewise in those of such long standing as to preclude the hope of a recovery from its use, recourse is to be had to the application of caustic, which is to be trusted only in the hands of a surgeon.

Where stricture is apprehended, before going to sea consult a surgeon, who may, by bougies, open the urethra, and thus remove all danger of stoppage whilst at sea.

OF THE GENITALS.

SYPHILIS, OR VENEREAL DISEASE.

CHANCRE.

This disease is induced by the operation of a specific poison, generally imbibed from an affected person during sexual intercourse, and circulated through the whole system. In almost every case it first appears in the form of an ulcer or chancre, about the glans or head of the penis, frequently near the frenum or string. Generally a small itching pimple, containing a watery matter, is first discovered, which soon bursts, and leaves a circumscribed painful sore, but sometimes the first appearance is an abrasion of the skin. The ulcer assumes a foul and rough appearance, with hardened edges, discharges a foul greenish matter, and differs from other ulcers, in its total indisposition to heal. The period of the appearance of chancre, after

receiving the infection, varies from five or six days, to as many weeks.

TREATMENT.

This may be divided into general and local. In the former, which is by far the most important, mercury is *not* indispensably necessary, especially when the disease is recent. On the first appearance of chancre, the patient should take a dose of physic of a cooling kind, as salts or oil, and abstain from all stimulants, and from animal food, for several days. He should, on the day after taking the physic, apply the stick of caustic to the surface of the chancre; the physic and caustic may be repeated two or three times on the succeeding days. After each touch of the caustic, the chancre should be dressed with lint, besmeared with soft ointment, or with tallow or oil; and a soft rag wet several times a day in lead water should be applied over the part. In most cases this will effect a cure without the aid of mercury.

But if, from neglect of any part of the treatment or any other cause, the disease will not yield,—and one sign of this will be the appearance of a bubo in the groin,—then the patient must resort to the use of mercury. The best form of this will be the blue pill at night and morning, and if it excites diarrhoea, ten drops of laudanum may be taken at bed-time. A calomel pill of two grains may be taken instead of the blue pill.

With the view of hastening mercurial action in the system, blue ointment may be used in conjunction with the pills, and indeed, after one or two doses of the pills, it may be well to trust to the ointment alone. It may be used by rubbing a tea-spoonful of it on the inside of the thighs every day, for the space of five or ten minutes, continuing to wear the same drawers. This course is to be continued until some impression is made on the system, known by an uneasy feeling at the back of the head and neck, a slight coppery taste and clamminess of the mouth, and fetor of the breath, with perhaps a slight tenderness of the gums. Any action beyond this, such as salivation, or spitting and

sore mouth, will do more harm than good. The slightest constitutional impression that can be made is the best ; and when this once appears, stop the mercury in every form for two or three days, when a blue pill or two may be given to preserve the slight mercurial action, which should be continued a week or ten days. After this time it will be best to discontinue the mercurial course entirely for a week or two, even though the local disease be not cured, for the reason that the long continued use of mercury injures the constitution. It may, however, be resumed in the same manner, and if necessary, for the same length of time, or until the local affection has entirely disappeared.

During a mercurial course, abstain from high-seasoned food and spirituous liquors, and subsist on an easily digested diet, as fresh meat, broths, porridges, tea and biscuit, rice puddings, and fruit ; preserve a pretty uniform temperature, and keep the clothing dry.

If unluckily salivation be produced, or soreness of the gums, use a wash of weak solution of alum, and take sulphur and cream of tartar every evening.

I have been thus particular about the use of mercury in syphilis, because I think it is likely to be used too indiscriminately. In former editions of this book, I recommended it in all cases of chancre ; but I am now convinced that in recent cases of chancre, it is almost always best to dispense with mercury ; and even in cases of bubo, if recent, it would be advisable to defer its use, provided there is any prospect of soon arriving in port, where medical advice can be obtained, and where the patient can be less exposed to wet and cold while under the mercurial influence, and to adopt in the mean time the other remedies before mentioned. But in the commencement of whaling or other long voyages, it may be unsafe to defer the use of mercury as here directed.

Avoid irritating the part by exercise, by sexual intercourse, and even by lascivious thoughts.

In long voyages, as in whale-ships, persons who have thought themselves cured, may find the disease breaking out upon them again in the form of ulcers on the skin, or

in the throat, or in hard swellings on the bones, as the shins or forehead. In all such cases the constitution is seriously affected, and even life endangered unless means are used to eradicate the poison. Mercury properly used will stay the progress of the disease, but, as before suggested, might injure the constitution if long continued. A comparatively new medicine, called Iodide of Potassium, and which I have added to the list of medicines in the chest, will cure better than mercury, with little or no liability to injure the constitution. It should be given in from five to ten grain doses twice a day on an empty stomach, in a wine-glass of water for two or three weeks, and then suspended for a week. This will serve as a safeguard to keep the disease in check, if not to effect a cure. If sore throat, or running from the nose, or pain in the stomach or forehead, occurs while the patient is taking it, it should be stopped for a while.

PHYMOSIS.

Not unfrequently it happens from neglect of large chancres on the head of the penis, that the prepuce or the foreskin becomes inflamed, and so contracted round the head of the penis that it cannot be drawn back, so as to expose the chancres to view, and admit of their being dressed. In such cases the general treatment recommended for chancres is to be continued as above directed, and warm water, containing a little soap, to be injected several times a day, between the skin and head of the penis, for the purpose of cleaning the part, and allaying inflammation. Warm poultices, made of flax-seed and pounded bread, should be applied to the part. Occasional attempts may be made to draw the skin back, and the penis be suspended against the body. If the inflammation be great, lose a pint of blood, and take a dose of salts. When these means fail to reduce the inflammation, and large ulcers exist under the skin, which cannot be brought to view, the stricture may be divided with a sharp instrument or scis-

sors, its whole length, and the part bathed frequently in warm water, and poulticed three times a day, for two days; after which, dress the wound with lint and simple salve, and the chancres as formerly directed.

When the stricture or contraction is caused by the inflammation and discharge of a virulent gonorrhœa, it is to be treated in the same manner as above directed.

PARAPHYMOSES.

This is a contraction of the prepuce or foreskin, back of the head of the penis, so that it cannot be brought forward. It is induced by the same causes as the preceding disease.

The same means are to be employed to reduce the inflammation as in phymosis, adding the frequent application with rags of sugar of lead, dissolved in water, one drachm of the former to four ounces of the latter. This and other cold substances are to be applied to the head of the penis, and occasional attempts are to be made to draw the skin over the part.

If, notwithstanding this treatment, the swelling increase, there is danger of mortification; the skin must therefore be divided by making an incision upon each side with a lancet, and the wound be treated as directed after the operation for phymosis.

BUBO.

A bubo is generally the consequence of chancre, though sometimes it is the first symptom of the venereal. It is a hard, painful tumor, seated generally in the groin. If not subdued the inflammation ends in the formation of matter.

TREATMENT.

As the ulcer formed by a bubo, that is suffered to break, is troublesome and difficult to heal, it is of the first importance to subdue the inflammation early, before matter has

formed. This must be effected, 1. By purgatives, as salts, or a draught of sea-water, taken every two or three days, and subsisting on a light diet, as broths, gruel, sago, barley, rice, puddings, &c. 2. By rubbing the inside of the thigh and leg with mercurial ointment, in quantity equal to the size of a nutmeg, three times a day, continuing it with occasional omissions, as hereafter directed, till the bubo is nearly dispersed. 3. By cold applications to the bubo, as Epsom salts, laid on in a small bag, and frequently moistened with cold water and vinegar, or by a solution of salt and nitre in vinegar and water, used very cold, and applied with rags every hour. When these means fail to arrest the progress of the inflammation, we may hasten the formation of matter by applying caustic to the centre of the swelling, and when matter has formed, a soft poultice may be applied, till the abscess is about to break, when a small puncture is to be made with a lancet, in the most depending part, and simple ointment applied on lint. If after some days the swelling continue, apply over it a thick covering of mercurial plaster, spread on soft leather, leaving an orifice in the centre over the sore for the discharge of matter and the introduction of lint.

A mercurial action is generally deemed necessary in buboes, but as they are a long time in subsiding, not unfrequently some months, a constant mercurial action, kept up all this time, might create an unnecessary debility of the system; besides this, it sometimes happens, that from the long continued action of mercury upon the system, the sore turns to what is termed a mercurial ulcer, and is then aggravated, rather than benefited, by the medicine. In buboes of long standing, therefore, after having excited a slight mercurial action by friction, as above directed, and continued it for some days, omit the unction for a week or ten days, and then return to it for five or six days only at a time. The degree to which mercurial action should be excited, need be only till a copperish taste and some fetor of breath appear. The same precautions are necessary in regard to exposure to cold and moisture, that are mentioned in the treatment of chancres.

SWELLED TESTICLE.

It may be induced by any of the common causes of inflammation, but is more frequently brought on by the use of strong urethral injections, or incautious introduction of bougies. It often follows a sudden suppression of the gonorrhœal discharge from cold; sitting on wet grass often occasions it.

TREATMENT.

The patient should confine himself to a spare diet, and remain in a recumbent posture, with the part suspended or triced up, by means of a bag-truss or bandage. The bowels should be moved by a dose of salts, and if inflammatory symptoms run high, general bleeding will be necessary. One of the best local applications is Epsom salts, laid on the part in a small bag, and frequently moistened with cold water. A strong solution of sugar of lead may be applied cold, every ten minutes, by means of rags, immersed in the liquid.

When the disease proceeds from the sudden suppression of a clap, a return of the running is to be favored by injections of warm flax-seed tea.

Should the swelling continue increasing and matter appear to be forming, the part is to be bathed and poulticed.

DROPSY OF THE SCROTUM,

Is an accumulation of water, first perceived at the bottom of the scrotum, which gradually increases, and gives the part a pyramidal shape; a distinct fluctuation is generally to be distinguished. There is no pain or discoloration, and in viewing the parts near to a strong light a transparency is observable.

TREATMENT.

At the commencement of the disease, and when a small quantity of fluid only is collected, it may sometimes be dis-

persed by cold and stimulating applications, as sal ammoniac, dissolved in vinegar and spirit; nitre, or Epsom, or table-salt dissolved in the same fluids, applied cold very frequently with soaked rags. In general, however, it will eventually become necessary to evacuate the fluid by an operation.

DISEASES OF THE LIMBS AND LARGE JOINTS.

RHEUMATISM.

There are two kinds: *acute*, which is inflammatory, and of short duration; and *chronic*, which is of long duration, and accompanied by debility.

SYMPTOMS OF ACUTE RHEUMATISM.

They commence with slight fever; very soon followed by an inflammation, sharp pain, and swelling in the neighborhood of one or more of the large joints, and this pain increases when the patient becomes warm in bed. It is variable, shifts from joint to joint, and leaves the part it occupied, swollen, red, and tender to the touch. The joints most subject to this disease, are the hip, loins, back, and shoulder. The pulse is full and hard, the tongue has a slight whiteness, the urine is high colored, the blood, when drawn from a vein, exhibits a light colored crust on its surface; costiveness prevails; and sometimes there is profuse sweating without relief.

CAUSES.

Obstructed perspiration, occasioned by wearing wet clothes, lying in damp linen or damp rooms, or by being exposed to cold air, while heated by exercise. Sailors are particularly liable to this complaint, on account of their frequent calls upon deck in rainy weather, and sleeping in wet clothes. Often it attacks sailors on their approach from a warm to a cold climate.

TREATMENT.

This is to be commenced by bloodletting and purging ; the quantity of blood to be taken from a sailor, may be between one and two pints, according to the strength of his constitution and the violence of the attack ; and if the symptoms continue unabated, the operation may be repeated on the following day. As a cathartic, give a dose of salts, or of castor oil, or flowers of sulphur and cream of tartar, half an ounce of each mixed with molasses, or the cooling mixture. When the bowels have been moved, take Dover's powders, eight to twelve grains, or two to three pills, every four hours, and drink freely of warm herb tea and toast-water, or barley-water and gruel. Another remedy of great value in acute rheumatism, is opium, one grain, taken every three hours, keeping constantly warm in bed, and drinking freely of herb teas, until the pain is carried off by profuse sweating. This course should be preceded by a cathartic.

When fever has subsided, and the pain is confined to one part, blisters will prove useful. Warm fomentations tend rather to aggravate the pain of acute rheumatism. The patient should subsist on a low diet, abstain from stimulating drinks, and preserve an open state of the bowels by occasionally repeating the purgatives before recommended.

When the inflammatory symptoms have subsided, the patient may return to a generous diet, and the use of wine and strengthening medicines.

In approaching a cold climate, the master of a vessel should attend to the clothing of his crew, and see that its warmth increases in proportion to the coldness of the weather ; he should also prevent the men's sleeping on damp beds or in wet apparel. If woollen shirts are best for sailors in all climates, they are more particularly so in approaching from a warm to a cold one.

CHRONIC RHEUMATISM.

It may be either a consequence and termination of the acute rheumatism, or it may be independent of it. In the first case, the parts which were affected with inflammation, are left weak, stiff, in some instances swelled; and the pain, before movable, is now usually confined to particular parts: sometimes, however, it still shifts from joint to joint, but is unattended by any inflammation or fever. When not the consequence of acute rheumatism, it is most commonly met with in people at the decline of life. The pains are felt in the large joints, which are increased upon motion, and relieved by artificial warmth; the part affected is pale and cold, even when the other parts of the body are warm.

TREATMENT.

This must differ from that which is recommended in acute rheumatism. General bleeding, as well as much purging, will be inadmissible. The part affected may be rubbed several times a day with volatile liniment, or with spirits of camphor, and the part rolled in flannel. In long continued and obstinate rheumatic affections, leeches applied to the part will be serviceable, as also blisters kept constantly running. A valuable application to the part is, a plaster of common pitch, spread as thick as a dollar on soft leather, and sprinkled over with tartar emetic, five grains to a surface as large as the hand.

These local applications must be accompanied with such internal medicines as are best adapted to stimulate and warm the system, and alleviate pain. Gum guaiacum is one of the most powerful general stimulants, and may be taken in doses of fifteen grains, or a small tea-spoonful of the powder mixed with sugar, molasses, or gruel, every three hours. Or take of the tincture of Guaiacum from two to four tea-spoonfuls, in wine or gruel; wine of Colchicum, three times a day, in doses of twenty drops, and increasing one drop a day.

The diet should be rich and stimulating ; flannel worn next the skin ; and exposure to cold night-air, wearing damp clothes, and wetting the feet, should be carefully avoided.

To relieve pain and promote sleep, take Dover's powders, eight grains, or two pills, on going to bed.

In the winter season a warm climate would prove highly beneficial. Such persons as wish to make the tour of Europe, would find Italy a suitable residence — Bareelona, Valencia, in Spain, and the whole shore of France, from Pau to Piedmont, are good ; also Madeira, the West Indies and Florida.

SPRAINS

Are violent stretchings or twistings of joints, followed by painful swellings. They are often attended with worse consequences than broken bones, on account of their being more neglected. When a bone is broken, the limb is kept easy, because it is useless ; but when a joint is sprained, it is still used, by which it may finally be rendered incurable.

The most essential measure is perfect rest ; and to insure this, if the case be at all serious, the part may be confined by a pasteboard splint. Warm bathing generally gives more relief than cold. If inflammation run high, or a large joint is affected, leeches or bleeding and general cooling measures must be adopted. Afterwards liniments may be useful, moderate exercise, and bandaging with flannel.

DISLOCATIONS OF THE LOWER JAW.

The lower jaw may be disjointed by yawning, or blows. It is readily known by the patient's inability to shut his mouth — a want of correspondence of the patient's teeth — hanging down of the chin, which is sometimes turned

to one side — inability to speak distinctly, or to swallow without considerable difficulty.

The bone may be replaced by sitting the patient upon a low stool, so that an assistant may hold the head firmly against his breast. The operator is then to thrust his two thumbs, previously wrapped in linen, far back into the patient's mouth, and, applying the fingers to the jaw externally, is to press it strongly downwards and backwards, by which the dislocated heads of the jaw may be easily forced into their proper cavities.

DISLOCATION OF THE SHOULDER.

The humerus or upper bone of the arm may be dislocated in various directions ; it happens, however, most frequently downwards, and very seldom directly upwards. From the peculiar structure of the joint, as well as from its exposure to external injuries, this bone is the most subject to dislocation of any in the body. A dislocation may be known by a depression or cavity on the top of the shoulder, and an inability to move the arm. When it is downward or forward, the arm is lengthened and a swelling is perceived under the arm-pit ; when it is backward, there appears a protuberance behind the shoulder, and the arm is thrown forward toward the breast. The two shoulders should be carefully compared.

TREATMENT.

A bandage or strong belt is to be passed under the arm-pit of the injured side, and carried over to the opposite shoulder. A common roller towel or strip of sail cloth will answer. A second belt or strong handkerchief is to be tied round the dislocated arm, just above the elbow. By the latter of these, a gradual extension must be made by one or two persons, in a direction obliquely downwards and outwards ; the body being at the same time kept immovably fixed, by assistants drawing the former belt in an opposite direction. After this extension has been kept up

for a short time, during which it should be gradually increased in force, the operator is to lift the head of the bone into its cavity.

DISLOCATION OF THE ELBOW.

The bones of the fore-arm may be dislocated in almost any direction. When this is the case, a protuberance or hard swelling may be observed on the side of the arm to which the bone is pushed. It may be known by the patient's inability to bend the arm, and by comparing its shape with the other elbow.

Extension is to be made by assistants pulling gradually in opposite directions, while the operator returns the bones into their proper place. Afterwards the arm must be bent and suspended for some time with a sling about the neck.

Luxations of the wrist and fingers are to be reduced in the same manner as those of the elbow; viz., by making an extension in opposite directions, and thrusting the head of the bone into its place.

DISLOCATION OF THE THIGH.

When the thigh bone is dislocated forward and downward, the knee and foot are turned out, and the leg is longer than the other; when it is displaced backward, it is usually pushed upwards at the same time, by which the limb is shortened, and the foot is turned inwards.

When the thigh bone is displaced forward and downwards, the patient, in order to have it reduced, must be laid upon his back, and made fast by bandages or held by assistants, while by others extension is to be made by means of slings fixed about the thigh, a little above the knee. While the extension is making, the operator must push the head of the bone outward, till it enters the

socket. If the dislocation be outward, the patient must be laid upon his face, and during the extension, the head of the bone must be pushed inward.

DISLOCATIONS OF THE PATELLA, OR PALM-BONE OF THE KNEE.

The patella may be thrown out of its place either sideways or upwards; in the latter case, the ligament with which it is connected is broken, and the bone is drawn up several inches among the muscles of the thigh. The nature of the case can be distinctly ascertained, both by the sight and feeling.

TREATMENT.

In the dislocation sideways, the limb must be firmly extended; when, pressure being made upon the protruding edge, the bone immediately regains its former situation.

When the dislocation is upwards, it is to be treated precisely as a transverse fracture of the bone; which see.

DISLOCATION OF THE KNEE-JOINT.

The principal bone below the knee may be partially dislocated, either inwards, outwards, or backwards. In either case it is obvious to the sight. It very rarely occurs.

Extension is to be made upwards, by the thigh, and downwards, by the leg, while the bones are replaced by pressure with the hand.

DISLOCATION OF THE ANKLE.

A dislocation of this joint may take place, either inwards, outwards, or forwards.

The two former cases may be ascertained by the inclination of the foot, and by the unnatural protuberance on one side, and deficiency on the other. When the end of the bone of the leg is forced forwards on the foot, the instep will be observed to be considerably shortened, and there is a great and unusual projection of the heel.

The bone is to be replaced by extension, made in the same manner as in dislocation of the knee.

DISLOCATION OF THE THUMBS, FINGERS, AND TOES.

These are to be replaced by making extension, at the same time gently bending the joint, and applying pressure with the thumb upon the end of the bone that is out of place.

FRACTURES, OR BROKEN BONES.

GENERAL REMARKS.

In the fracture of a large bone, the patient should be put upon a light, unstimulating diet, and if young and plethoric, he may be bled. He should be kept dry and clean, that the parts which bear hard upon the bed may not be galled. While at sea, where the ship is rolling, it will be indispensably necessary for him to swing in a cot. It has been customary with many to keep the limb continually upon the stretch, but this posture is uneasy to the patient and unfavorable to a cure. It will be preferable to keep the limb a little bent, either by laying the patient upon the side, or by making the bed so as to favor this posture. The dressings of the fracture should be re-applied every three or four days, or oftener if they become loose, and the lint should each time be wet with some cooling wash, as a solution of sugar of lead, or vinegar and water.

FRACTURE OF THE BONES OF THE NOSE.

When the bones of the nose are broken in, they may be raised to their place by means of a quill, or other instrument introduced by the nostril, and in general they will retain their situation, without any further assistance.

FRACTURE OF THE LOWER JAW.

The nature of the injury is obvious to the sight. The parts being accurately replaced, and kept firm by an assistant, a thick pad of lint should be placed over the seat of the fracture, and a bandage applied, by means of which the jaw may be firmly held upwards and backwards ; for this purpose the most effectual is a bag or purse, to receive the chin, with four tapes, or ends, attached to it ; the two inferior of which are tied over the top of the head, and the two superior carried back of the head.

During the cure, the patient should be kept quiet, and not suffered to exercise his jaws in chewing his food.

FRACTURES OF THE CLAVICLE, OR COLLAR-BONE.

The existence of its fracture may be known by tracing the collar-bone along with the fingers, when one of the fractured ends will be found to project over the other, and a crackling noise of the bones will be perceptible.

TREATMENT.

The arms and shoulders of the patient are to be firmly drawn backwards by an assistant, when the fractured ends immediately come in apposition. The part is now to be covered with a thick adhesive plaster, or one of common pitch, and a bandage is to be applied to retain the bones in their place. The bandage should be long, and commencing with it on the part injured, is to be carried under the arm-pit across the back, and over the other shoulder ; then

under the arm-pit of that side, and back over the injured shoulder ; thus describing on the back the figure ∞ . The turns should be repeated two or three times, and be drawn with considerable tightness, and the arm should afterwards be supported with a sling from the neck.

FRACTURE OF THE RIBS.

The characteristic mark of a fracture of the ribs is the crackling or grating of the bones, which may be distinctly felt and heard, upon the patient's coughing, or during a deep inspiration, and by a sharp pain of the part, at the same moment.

TREATMENT.

In this, the principal attention is to be directed to the general symptoms. Bleeding in almost all cases is necessary, and such other means should be adopted as are calculated to allay inflammation, as gentle purging, and abstinence from the use of stimulants. An adhesive plaster may be applied over the fracture, and the body tightly encircled with a broad bandage.

FRACTURE OF THE ARM, BETWEEN THE SHOULDER AND ELBOW.

This fracture is simple and easily recognized. In order to bring the fractured extremities into their place, a slight extension should be made, with the elbow bent at a right angle. The arm is then to be encircled with a piece of soft flannel, or cotton, and two splints applied, one on the inside, and the other on the outside of the arm. They may be made of pasteboard or thin slips of wood, an inch and a half broad, and to extend the whole length of the bone, to be bound on with a bandage. The forearm should be suspended by a handkerchief from the neck, in such a man-

ner that the wrist may be more supported than the elbow, so that the weight of the arm, counteracting the contraction of the muscles, may serve to keep the ends of the bone in their proper place.

The bones should be retained in their place for two weeks, by which time they will be united.

FRACTURE OF THE ELBOW.

The fracture of this is readily known. The piece of bone will be found drawn upward. It is to be replaced and confined by a bandage rolled round the limb, as directed in fracture of the patella, and the arm should be kept nearly straight, by means of a splint bound upon the inner side, and extending nearly to the hand and shoulder. By persevering in this, the knob of bone forming the elbow, will be joined to the arm from which it has been broken.

FRACTURE OF THE BONES OF THE FOREARM.

The existence of a fracture of these bones may be known, by tracing the course of the bones with the fingers, from the elbow to the wrist, comparing the limb with the other, and by the crackling or grating of the ends of the bones against each other.

The same treatment is required as in fracture of the arm between the shoulder and elbow. The splints should be laid one on the inside, and the other on the outside of the arm; so that both bones may be at once effectually compressed; that on the inside should reach to the palm of the hand, by means of which the wrist will be kept steady, and the bones prevented from rolling on each other. They may be confined by a bandage rolled round the limb, and the arm worn in a sling. The splints should be loosened every day, and the arm bathed in cold water or vinegar.

FRACTURE OF THE BONES OF THE HAND AND FINGERS.

The fractures of the bones of the hand are readily replaced, and may be easily preserved in their natural situation by accurately adapting a pad or cushion to the palm of the hand, and applying a bandage over all, beginning at the wrist, and extending it to the fingers.

When the fingers are broken, they are to be neatly set with pieces of pasteboard, moistened ; over which a small roller is to be applied.

FRACTURE OF THE THIGH-BONE.

The existence of this fracture may be known by the crackling or grating of the broken ends, made in moving the limb, and by a projecting point that may be felt on the inside of the thigh. Also, by the inability of the patient to cross the injured limb over the other.

TREATMENT.

The patient should, if possible, be moved to a cot, since a common fixed berth will hurt the limb during the motion of the ship, and a hammock is rendered objectionable by its curved shape. The patient thus conveniently situated, a gentle extension is to be made by an assistant, while the operator replaces the bones in exact apposition, and applies over the limb a soft rag wet with a strong solution of sugar of lead ; and over this, the many-tailed bandage, made in the following manner :—take common rollers or bandages of cotton, two inches wide, and of sufficient length to pass round the limb, and lap over, two or three inches ; spread as many of these by the side of each other, as will extend from near the groin to the knee. Another bandage of the same kind is then to be laid across, and stitched to them. The whole are now to be placed under the thigh in such a manner, that the cross bandage shall stretch along under

the bone, and each of the tails is to be brought separately over the limb, beginning at the one next the knee, and crossing it by the one opposite. When all the tails are thus brought over, and made fast with pins, three splints are to be applied, one on each side, and a third on the top, that on the outside being of sufficient length to reach from the hip to the knee. These being tied firmly with tapes, the limb may now be placed, either in a straight position, or in a fracture box, shaped like the roof of a house, with the knee bent to a considerable angle, which is preferable; or the thigh may be laid smoothly upon a pillow, on one side, a little out from and higher than the body. The limb must remain in this position for several weeks. If possible a surgeon should be called soon after the fracture, as it may lead to the prevention of a crooked limb.

Fractures of the bones of the leg below the knee, are to be treated in nearly the same manner as the above.

FRACTURE OF THE PATELLA, OR PALM-BONE OF THE KNEE.

The fracture is generally transverse, and rarely longitudinal. In the former case the upper portion is drawn up several inches among the muscles of the thigh.

TREATMENT.

In the longitudinal fracture, continued extension of the limb and the application of a bandage to the knee will be sufficient to effect a speedy union.

In cases of transverse fracture, owing to the great separation of the divided portions, it is extremely difficult, and nearly impracticable to effect a union by bone. The fractured portions being made to approach each other as nearly as possible, the middle of a bandage of considerable length is to be applied over the upper part of the patella, and being carried round the thigh just above the joint, it is to be crossed under the ham, and carried round below the knee, so as to draw the fractured portions together, and

having thus described the figure 8 around the joint, it is to be firmly secured and daily increased in tightness.

As it will be necessary to keep the limb constantly extended, a splint, lined with tow, wool, or cotton, may be applied under the ham, and made fast to the limb with tapes.

A fracture of that projection of bone that makes the elbow, may be treated in nearly the same manner.

DISEASES OF THE SKIN.

ERYSIPelas.

SYMPTOMS.

It begins with symptoms of fever, confusion of the head, sometimes delirium, sickness at the stomach. About the second or third day, the skin of some part of the body, generally the face, becomes inflamed. The redness commences about the eyes and nose, or one of the ears, is attended with itching and burning, and extends from the forehead to the mouth. If the disease continue, the whole of the head becomes inflamed, and often one or both eyes are closed. As the redness extends, it frequently leaves or is abated in the part it at first occupied. After a longer or shorter time, the redness terminates in small watery pimples, or in a scaling of the skin. The fever, however, does not always at this period suffer a remission, but on the contrary, is frequently aggravated, and sometimes the patient expires about the ninth or eleventh day.

TREATMENT.

Reduce the inflammatory state of the system by cooling, or mercurial purges, as calomel, from six to ten grains with as many grains of jalap, or by the cooling mixture, (see Appendix) a table-spoonful every three hours. Take diluting drinks, as lemonade or water, containing cream of

tartar, barley-water, &c. ; avoid stimulating food or drinks. Evaporate spirits on the part by frequently applying it with a soft rag.

As soon as the bowels have been moved, if the disease continue to increase, it is recommended to give quinine two grains, every two hours, in a draught of water, till the inflammation and extent of the disease manifestly lessen. The room should be kept cool and dark, and the patient still.

ITCH.

One of the best medicines for this complaint is sulphur, which should be used both externally and internally. The parts most affected may be rubbed every night with ointment, made of flower of sulphur two ounces, and hog's lard or butter rubbed together; chloride of lime, a table-spoonful, dissolved in a wine-glass of water, may be rubbed over the pimples. As much flower of sulphur as is requisite to keep the bowels open, may be taken every night. It will be necessary to observe cleanliness, and after the disease is removed, to fumigate the clothes with sulphur, or to immerse them in water.

NETTLE RASH.

This resembles the eruption produced by the stinging of nettles; there is itching, and the eruption comes and recedes with quickness; rubbing or scratching brings it out.

It is caused by swallowing cold drinks, or crudities, when heated, also by sour milk and rancid cheese and by shell fish.

The treatment may be simply magnesia, or a Rochelle powder, followed by a cup of tea without milk.

PRICKLY HEAT. (*Lichen Tropicus.*)

This is among the primary effects of a hot climate, and may be called one of the miseries of a tropical life, which

assails at all, and particularly the most unseasonable hours. "Many a time (says Dr. Johnson) have I been forced to spring from the table and abandon the repast, which I had scarcely touched, to writhe about in the open air for a quarter of an hour ; and often have I returned to the charge, with no better success, against my ignoble opponent ! The night affords no asylum. For some weeks, after arriving in India, I seldom could obtain more than an hour's sleep at one time, before I was compelled to quit my couch with no small precipitation, and if there were any water at hand, to sluice it over me for the purpose of allaying the inexpressible irritation ! But this was productive of temporary relief only ; a more violent paroxysm frequently succeeded." It may be entirely absent while we are sitting still, but appears on the least exercise, or on taking any thing hot or stimulating.

The only means, says Doctor Johnson, which I ever saw productive of any good effect in mitigating its violence, till the constitution got acclimated, were light clothing, temperance in eating and drinking, rest in the heat of the day, open bowels, and last, not least, a determined resolution to resist, with stoical apathy, its first attacks, by which the enemy will generally sneak off, and leave us victorious for the time.

W O U N D S .

As an enumeration of the many classes into which wounds are divided by surgical writers, would confuse those for whom this book is intended, they are here included in three divisions, viz., *Incised wounds*, or simple cuts, made with a sharp instrument ; *Contused wounds*, or bruises, including gunshot and lacerated wounds ; *Punctured wounds*, or those produced by a sharp-pointed instrument, as a nail or dirk.

INCISED WOUNDS, OR CUTS.

The first object of attention in cuts, is to stop the bleeding. In wounds of the limbs, where the bleeding is

alarming, a tourniquet or bandage is to be applied above the part in the following manner: a strip of canvass or strong cloth, an inch and a half wide and two yards long, is to be passed twice round the limb, the best place being about the middle of the arm or thigh, and tied in a hard knot; introduce between the turns of the bandage a stick three or four inches long, and turn it like a screw, till the twisting of the bandage arrests the flow of blood. A strong pocket handkerchief, passed twice round the limb and tied in a hard knot, may answer the same purpose.*

We then wash and cleanse the wound, in order to ascertain where the bleeding orifice of the vessel is. It may be necessary, for this, to slacken the tourniquet, so as to make the blood flow again; then, screwing it again, take up the artery, if there are suitable instruments on board — if not, try the following: take a sewing needle and insert the eye into a handle, like an awl, hold the point of the needle in the flame of a candle till it is red-hot, then cool it slowly, which will take out the temper of it, so that it can be bent into a fine hook; with this transfix the end of the bleeding vessel, and hook it out, so as to admit of a thread being put round it and tied. This is the most effectual way of stopping blood, if the vessel be large; and which I have, in the absence of the proper instrument, more than once used with success. The next surest way will be, to take a large wire, or even a common board nail, and heating it, sear the vessel. If the artery be very small, cobwebs or scrapings of sole-leather, or sponge or flour, may be pressed against the bleeding vessel, and pressure applied with a bandage.

The wound is then to be dressed by bringing its edges accurately together, and confining them with slips of adhesive plaster three or four inches long, laid across the cut. A narrow slip of lint or rag, spread with simple ointment, is to be laid over the wound on the adhesive plaster; lint or

* The author has the satisfaction of learning, that the New Bedford and Nantucket whalers, in most cases, have in their medicine chests a first-rate tourniquet. This fact, with many others, speaks well for the liberality of their owners.

tow then applied to absorb the discharge, and, lastly, a bandage rolled on to confine the dressings. An assistant is then to make pressure on the wound, while the tourniquet is gently slackened. The tourniquet is, however, to be continued loosely round the limb, ready for use, in the event of a return of bleeding. The dressings may be renewed in three or four days, excepting the adhesive plaster, which should be continued till adhesion of the wound has taken place, or for six or seven days.

It will be advisable to move the bowels with a mild cathartic, as cream of tartar, and to subsist on a light, unstimulating diet.

If an artery is wounded where no tourniquet can be applied, the bleeding must be stopped by filling the wound with bits of sponge or dry lint, and applying pressure ; the lint or sponge not to be removed till it suppurates and can easily be taken out. If the bleeding artery can be taken up and tied, it should be done ; and if not, the bleeding orifice may be seared with a large wire heated.

In slight cuts, a tourniquet will not be required. In other respects the above treatment should be adopted. If the wound gapes open, a stich may be taken in it.

CONTUSIONS or BRUISES, and LACERATIONS, as well as GUNSHOT WOUNDS, are more painful than incised ones ; are swelled, ragged, and not attended with much bleeding.

The principal objects in the treatment, are to moderate inflammation, and to accelerate the healing process. The first is to be effected by warm poultices made of Indian meal and flax-seed, or pounded biscuit and flour boiled together, applied every three or four hours, and by bathing the part in warm water. When inflammation has abated, the healing of the wound may be promoted by dressing it with lint, spread with basilicon.

If the form of the wound will admit of its edges being drawn towards each other, their approximation should be supported by adhesive plasters and bandages.

If the wound be attended with great swelling and pain,

the patient must be bled and purged, in proportion to the violence of these symptoms, and stimulants of every kind avoided. A few drops of laudanum may afford relief.

PUNCTURED WOUNDS are frequently produced by nails or sail needles, and STABS are sometimes made by knives or dirks. The consequences may be lockjaw or extensive abscesses.

The most effectual way of preventing these evils is to enlarge the opening with a lancet or sharp knife, and thus convert the puncture into a simple cut, which is to be dressed accordingly. When this is not done, the part should be kept still, and dressed frequently with warm poultices. If the wound be deep and unattended with much bleeding, there will be danger of violent inflammation, that may require bleeding and purging to subdue it.

BURNS AND SCALDS.

The part should be immersed in cold water or other cold fluid immediately, and continue there till some raw cotton is brought, and ready for application to the burn. This article will allay the inflammation, and if seasonably used, will even prevent the formation of blisters. It may be renewed every twelve hours, care being taken to preserve the skin from injury. If the pain be excessive, give a grain of opium every half hour, till it is alleviated. If no cotton can be had, continue cold applications and apply a poultice made of scraped raw potatoes. Should the burn be very severe and extensive, it may be necessary to administer gentle laxatives and to abstain from stimulants.

Should the burn be deep, apply soft poultices made of Indian meal or pounded bread and flax-seed, or flour, and after the inflammation has abated, the healing of the ulcer may be promoted by dressings of simple ointment, made of spermaceti, olive, or sperm oil and beeswax, equal parts, spread on soft lint, over which a bandage may be applied moderately tight. When fungus or proud flesh appears, it

may be touched with blue stone. The blisters occasioned by burns should not be opened immediately, as the access of air will cause deep ulcers. After a day or two, they may be punctured with a lancet, or needle, and the skin suffered to remain on.

A liniment made of lime water and oil shaken together, and applied, with a feather or soft rag, to ulcers from burns, will be useful. A cooling ointment for burns may be made by melting together sperm or olive oil, beeswax, and spermaceti — and while liquid, add half the quantity of lead water, made by dissolving 4 or 5 grains of sugar of lead in a wine-glass of water, and stirring it into the ointment whilst it is cooling.

CHILBLAINS, OR FROST BITES.

When the extreme parts of the body are exposed to severe cold, they are first affected with numbness, and afterwards with swelling and inflammation, and sometimes mortification.

Immediately on perceiving the numbness, the patient should immerse the part in cold water, or rub it in snow, and on no account approach the fire, till its feeling is restored. He should also abstain from stimulants and warm drinks.

When these precautions have been neglected, and a high degree of inflammation has ensued, the part should be dressed, at first with cold and afterwards with warm poultices, till the inflammation is subdued, when the ulcers may be dressed with some mild ointment.

ULCERS.

These may be occasioned by wounds, bruises, burns, frosts, &c. Where there is a tendency to scurvy, even the scratch of a pin may produce an ulcer of great malign-

nancy. Old sailors, whose constitutions are much impaired by intemperance, are often afflicted with obstinate ulcers on the skin. The longer such sores continue, the greater will be the length of time necessary to heal them.

Recent and healing ulcers should be washed daily, and dressed with mild ointments applied on lint; all sources of irritation should be avoided; the part kept still and in a horizontal posture. If the ulcer be of long standing and slow in healing, the edges of it may be drawn toward each other, by means of straps of adhesive plaster. If the ulcer be on the leg, a bandage should be applied over the adhesive straps from the foot to the knee, with as much firmness as the patient can bear. The edges of the ulcer should be occasionally touched with blue stone. If a high degree of inflammation and swelling be induced in an ulcer by cold or other causes, it should be bathed with warm water, and poulticed frequently.

BITES OF THE VIPER, SNAKES, ADDERS, &c.

The symptoms that usually follow are a swelling of the part, faintness, giddiness, vomiting, difficulty of breathing, cold sweats, convulsions, and sometimes death.

The most effectual way of obviating these symptoms, is the immediate cutting out of the part or burning it with fire. Where this is not done salt may be applied to the part and the wound sucked for a long time, the mouth being defended by oil. A tight ligature should at the same time be kept on the limb, above and near the wound. It is recommended by some to apply hot spirits of turpentine to the part. The Indians burn gunpowder on the part bitten.

In the south of France the bite of the scorpion is not dangerous, rarely worse than the sting of a wasp. In tropical climates it is much more deadly, and is to be treated like viper bites. The viper bite is often attended with danger, especially in the summer, and when the reptile is strong and enraged.

GUINEA WORM.

In Guinea and in some parts of the East and West Indies, foreigners, as well as inhabitants, are often troubled with the Guinea worm, which the celebrated Dr. Lind thus describes ; " This is a white, round, slender worm, often some yards long, lodged in the interstices of the muscles, commonly in the legs, feet, or hands ; when it attempts to escape through the skin, it occasions a swelling, resembling a boil, attended with great pain, until its little black head appears in a small watery bladder, on the head of the boil. When this bladder breaks, the head of the worm is to be secured by tying it to a small roll of linen, spread with plaster ; and part of the worm is once or twice a day to be drawn forth, with care not to break it, and wrapped round this roll, until it be brought away entire ; then the ulcer heals soon ; but if part of the worm breaks off, the portion remaining in the flesh can be extracted only by painful and tedious suppurations in different places."

OF PERSONS APPARENTLY DROWNED.

When the body is taken out of the water, it is to be stripped as soon as possible, wiped perfectly dry, and then laid between two blankets. The head is to be covered with warm flannels, hot substances applied to the feet, belly, and breast, and the body constantly rubbed with the hands.

The lungs are to be inflated as soon as possible with a pair of bellows, by inserting the pipe in one nostril, while the other nostril and mouth are kept closed, and blowing forcibly. When the breast is swelled by it, the bellows should stop, and an assistant should press the belly upwards to force the air out. This process should be repeated, twenty or thirty times in a minute, so as to imitate natural breathing as nearly as possible. If a bellows cannot be procured, some person should blow into one

of the nostrils through a pipe or quill, whilst the other nostril and mouth are closed as before. During this time a large quantity of ashes, or water, should be heated, and as soon as it is milk warm, the body placed in it; the blowing and rubbing continued as before, and, when the ashes or water are cooled, more is to be added, so that the whole may be kept blood-warm. When signs of returning life are apparent, the frictions must be continued, but more gently. These methods are to be continued three or four hours. When the patient can swallow, he is to take some warm spirits.

POISONS SWALLOWED.

When laudanum, opium, or morphine, or other poisonous vegetable substance is swallowed, a stomach pump should be used immediately, by which fluids may be pumped into and out of the stomach. In case a pump is not to be had, the stomach should be excited without delay by emetics, to throw off its contents, such as white vitriol, or blue vitriol, fifteen to twenty grains, or about a tea-spoonful dissolved in half a tumbler of water, and assisted by passing a finger or feather down the throat, swallowing warm water, and if necessary, repeating the emetic. He should not be allowed to sleep, but kept constantly in motion, have the head dashed with cold water, and the whole surface rubbed and stimulated with small rods or twigs. After the first effect of the poison has subsided, give a dose of Epsom.

If mineral or other poisonous acids have been swallowed, give magnesia, or soda, or saleratus dissolved in water; or if these cannot be had, shake a piece of hard or shaving soap in water, and give the water to drink, afterwards thin gruel, rice water, or starch.

If arsenic or corrosive sublimate has been swallowed, beat up the whites of half a dozen eggs in water, and give them, or starch made of a similar consistence; milk with wheat flour stirred in it, will be useful. A medicine called the hydrated peroxyde of iron is a known antidote to arsenic,

but this cannot be obtained on board a ship, nor is arsenic likely to be taken there.

Poisonous Fish are often taken, especially on the shores of South America. The usual symptoms are irritability of the skin, swollen eyelids, difficult breathing, and convulsions.

The treatment consists in emetics of ipecac, or white vitriol, followed by castor oil.

OPERATIONS.

BLOOD-LETTING FROM THE ARM.

The operator and patient being placed in proper relative situations, which it will be needless to describe, a ligature or narrow bandage is to be passed round the arm, just above the elbow, so as to compress the vein about two inches above the part from which the blood is to be drawn; and having been suffered to remain some minutes, in order for the vein to become distended, the thumb of the left hand should be pressed upon the vein made choice of, about two inches below the point where the orifice is to be made. The operator is now to take the lancet, previously bent nearly to a right angle, between the finger and thumb of the right hand, leaving at least half the blade uncovered. He is then to rest his hand on the three remaining fingers, while he pushes the point of the instrument cautiously through the integuments into the vein; when, having thus pierced its coats, he is to carry it forwards in a direction rather obliquely, until an orifice of sufficient size is made.

When a sufficient quantity of blood has been drawn, the ligature is to be untied, and the lips of the wound being carefully brought together, a small piece of folded linen is to be applied upon the orifice, and secured in that situation by a roller, passed alternately above and below the elbow, so that when applied it may describe the figure ∞ by crossing at the bend of the arm.

Faintness, which sometimes occurs during bleeding, may be removed by a draught of cold water, or by taking a horizontal position.

If the blood runs slowly, immerse the hand in very warm water. The ligature applied above should not press so hard as to stop the pulse.

Every direction given for blood-letting in the arm, is applicable to the foot, the bandage to be placed an inch or two above the ankle.

OF THE APPLICATION OF LEECHES.

The manner of applying these is too well known to require a description. Success is rendered more certain, by previously drying them, or allowing them to creep over a dry cloth ; the part also, to attract them, may be moistened with cream, sugar, or blood, or punctured with a needle.

OPENING A TUMOR OR ABSCESS.

The opening should be made in the most prominent part, and if it be on a limb, the incision is to be made lengthwise, and not across the limb. The part should be covered with plaster to exclude air.

AMPUTATION

As accidents sometimes happen at sea, in situations where it is impossible to obtain a surgeon, and which require the immediate amputation of a limb, it is proper to say a few words on that subject. To perform the operation is one thing, to know when it ought to be performed is another. Any man of common dexterity and firmness, can cut off a leg, but to decide upon the necessity of doing so, requires much judgment ; instances having occurred where, under the most seemingly desperate circumstances, the patient

has, through fear or obstinacy, refused to submit to the knife, and yet afterwards recovered.

Although in many cases much doubt may exist in determining whether it is proper to amputate or not, yet in others all difficulty vanishes, as when a ball has carried away an arm. Suppose for a moment, while rolling in a heavy sea, during a gale, the lashings of a gun give away, by which a man has his knee, leg, or ankle completely smashed, or either of these parts is crushed by a fall from a topgallant yard. The great laceration of blood vessels, nerves, and tendons, and the crushing and splintering of the bones, almost necessarily resulting from such accidents, render immediate amputation an unavoidable and imperious duty.

If there are none of the regular instruments on hand, you must provide the following, which are always to be had.

A razor, opened straight, and made fast at the joint with twine; a carpenter's tenon saw; a darning-needle inserted into a handle like an awl, one third of it towards the point to be heated red in the blaze of a candle, and suffered to cool very slowly so as to draw out the temper, and then bent like an awl; in the place of a tourniquet, a handkerchief and stick; a piece of cotton or leather, five inches wide and twenty long, slit up the middle to half its length; a dozen ligatures, each a foot long, made of waxed thread, bobbin, or fine twine; several narrow strips of sticking plaster; dry lint; a piece of linen large enough to cover the edge of the stump, spread with simple ointment, or lard; a bandage three or four yards long, the width of the hand; sponges and warm water.

AMPUTATION OF THE ARM.

Give the patient 60 drops of laudanum, and seat him on a narrow and firm table, of a convenient height, so that some one can support him by clasping him round the body. Place the handkerchief and stick as high up on the arm as possible, (the stick being very short) and so that the knot may pass on the inner third of it. Your instruments having been regularly placed on a table or waiter, within reach of your hand, while some one supports the lower end of the

arm, take the razor and make one straight cut all round the limb, through the skin and fat only ; then cut these up from the flesh one inch higher, let the assistant hold them back, while you cut through the flesh at one sweep, down to the bone. The assistant next puts on the slit piece of linen astride the bone, and pulls back the flesh from the bone, while you saw as high up as possible without wounding the flesh. With the curved needle or pincers, you then seize and tie up every vessel that bleeds, the larger ones first ; when this is done, relax the stick a little ; if an artery springs, tie it as before. The wound should now be gently cleansed with a sponge and warm water, and the stick be relaxed. If the arteries are evidently all tied, bring the flap of skin over the end of the stump, draw its edges together with long strips of sticking plaster, leaving the ligatures hanging out at the angles, lay the piece of linen spread with ointment over the strips, a pledget of lint over that, and secure the whole by the bandage, when the patient may be carried to bed, and the stump laid on a pillow.

The handkerchief and stick are to be left loosely round the limb, so that if any bleeding happens to come on, it may be immediately tightened by the person who is watching by the patient, when the dressings are to be taken off, the flap raised, and the vessel sought for and taken up, when every thing is to be placed as before.

In sawing through the bone, a long and free stroke should be used to prevent any hitching, as an additional security against which, the teeth of the saw should be well sharpened and set wide.

The most painful part of the operation will be the first incision through the skin ; the sawing gives no pain.

If by any means there is a difficulty in applying a ligature round the artery, pass the crooked needle with a strong thread round the end of it, and tie it ; the less of fleshy substance included in the thread, with the artery, the better.

The bandage that is put round the stump, should be rolled round from above, downwards, so as to support the fleshy part, and the straps of plaster that hold the flaps together, in order that the skin of the two opposite sides of

the stump may be preserved in exact contact. These bandages should not be disturbed for four or five days, by which time there is reason to hope that the stump has formed a firm adhesion. In changing them, they should be well soaked with warm water, then plasters, lint, and bandages are to be applied, and changed again every two days. In ten days the ligatures may be drawn away.

AMPUTATION OF THE THIGH is performed in the same manner as that of the arm.

IN AMPUTATING THE FOREARM, AND LEG, in which there are two bones, a sharp penknife will be wanted to divide the flesh between the bones, after having made the circular incision with a razor, down to the bones. The slip of cotton or leather, that is to serve for a retractor of the flesh during the sawing, should be divided at one end into three instead of two slips, and the middle slip is to be passed between the bones, which with the other two will hold the flesh back out of the way of the saw. In other respects, the operation should be performed as in the arm, already described.

AMPUTATION OF FINGERS AND TOES will require a penknife. Draw the skin back and make an incision round the finger, a little below the joint it is intended to remove; turn back a little flap to cover the stump, then cut down to the joint, bending it so that you can cut through the ligaments that connect the two bones, the under one first. The head of the bone is then to be turned out, while you cut through the remaining soft parts. If you see an artery spirt, tie it, especially in the great toe, but generally it will soon stop bleeding of itself. Bring down the flap and secure it by a sticking plaster, and a narrow bandage over the whole.

INTRODUCTION OF THE BOUGIE.

The patient may either stand or lie; a middle-sized bougie is to be well covered with olive oil, and the *penis*

taken in the left hand ; the point of the instrument should then be very cautiously introduced into the urinary passage ; when it meets with obstruction, it must be gently moved backwards and forwards several times. If unsuccessful, the bougie is to be withdrawn, and after an hour or two a smaller one tried. In some cases a middle-sized bougie will pass, when a smaller one cannot, and therefore that size should be always tried first. If introduced for a *stricture*, it should be repeated morning and evening, and remain from a quarter of an hour to an hour.

INTRODUCTION OF A CATHETER.

In introducing the catheter, the patient may lie with his head and knees raised. The catheter must be well covered with olive oil, and the penis held in the left hand, while the point of the instrument is cautiously introduced into the urinary passage, gently moving it backwards and forwards, till it enters the bladder, which may be ascertained by its having overcome all resistance ; then the wire inclosed in the catheter being drawn out, the urine will flow off, when the instrument may be withdrawn.

CLYSTERS, HOW TO BE ADMINISTERED.

These may be administered with a pipe or tube, inserted into the neck of a bladder ; or a syringe, an instrument with which every medicine chest should be supplied. The fluid to be injected being introduced into the bladder through an opening made in the side, which is to be tied up with a piece of twine, the pipe is to be well oiled, when the patient himself may introduce it into the fundament. He should then hold his breath, while the bladder is gradually pressed from the top to the tube, till all the liquid is injected. The point of the pipe should be directed backward a little, rather than in the line of the body. Every medicine chest should be supplied with a pewter syringe.

DIRECTIONS

FOR PRESERVING THE HEALTH OF SEAMEN AND PASSENGERS,
IN MERCHANT VESSELS, IN SICKLY CLIMATES.

PRELIMINARY REMARKS.

The foregoing pages contain some brief instructions for the treatment of diseases, when they have actually appeared on ship-board. A long sea service has, however, convinced me, that on board merchant vessels, *prevention* is more important than *cure*. In vessels exclusively devoted to the purposes of commerce, the necessities of the sick can hardly be looked for. In long voyages especially, in which it is important that the ship be as perfectly filled with cargo as possible, little room can be spared for the accommodation even of healthy seamen. When disease occurs during such voyages, it is peculiarly distressing. Conveniences are unprovided — attendants cannot be spared from the crew — and the patient is liable to error in the selection of his remedies. But if there be any marine service in which the occurrence of disease may be in the surest manner prevented, it is in the merchant service of this country. In the first place, voyages in general are performed in a length of time which can be tolerably well calculated on ; the means necessary for the prevention of diseases can therefore be accurately estimated, and most of them are of such a nature, that, if not necessary for one voyage, they will be in readiness for another.

In the next place, the nautical skill of our seamen is such, that a few men only are found necessary to take every care of large vessels. This very circumstance is of great consequence, in the prevention of disease ; for as a general rule, prevention is easy in proportion to the fewness of the individuals, among whom it is to be attempted. The

exception will be in those voyages in which from unusual circumstances the duty of men is very constant and severe. The unusual circumstances alluded to, are storms in latitudes and seasons which are ordinarily temperate — the employment of old vessels for long and fatiguing voyages, in which the labor of pumping, &c., is almost incessant — and voyages so calculated, that the American coast shall be made in the winter or early spring season, when the exposure of the men is necessarily very great, and endured under circumstances extremely favorable to the production of disease, viz., the return from a long voyage with perhaps a short allowance of provisions, and almost certainly with a very scanty supply of clothing. Except the concurrence of many, or all these circumstances, which indeed is very rare, prevention, as was observed, will be most certain among small crews.

Furthermore, men are more regularly employed. Indolence, therefore, which is among the predisposing causes of nautical disease, is not a habit of the crew. The men can be kept cleaner, for their habits can be more easily observed. Their berths are more easily cleansed and their apartments ventilated. Finally, the means of prevention which are to be found in diet, can with greater certainty, because with less expense, be provided. Those articles which are not usually employed except during disease, may be more readily and willingly laid in, and the attention of officers more certainly directed to the use of preventive and curative methods. In all this the seaman has principally been regarded. But the owner is not altogether without interest in the discussion. It is of importance to him, if his crew be small, that their health be preserved. The loss of a man, with the sickness of three or four, may frustrate the best concerted voyage. These considerations alone are sufficient to establish the truth of the importance of preventing disease on board merchant vessels.

It may be further added, that the means of prevention are readily understood and easily applied. It is of no consequence that the commander is not a medical man ; for if he, his owners, and his crew perform their various obliga-

tions to each other, disease at sea must be of rare occurrence. What these obligations are, may, in some measure, be gathered from the following pages. In offering them I have to acknowledge myself indebted, for many useful suggestions, to the writings of Drs. Lind, Turnbull, and Sir Gilbert Blane.

Directions, &c.

The only very fatal diseases incident to seamen are fevers, fluxes, and scurvy, in hot climates ; and pulmonary affections and scurvy, in cold climates. If I were to add any other complaint, says Dr. Blane, to those just mentioned, as most prevalent, and peculiar to a sea-life, it would be those foul and incurable ulcers, which are so apt to arise at sea, particularly in a hot climate. The slightest scratch, or the smallest pimple, more especially on the lower extremities, is apt to spread, and to become an incurable ulcer, so as to end in the loss of a limb. The nature of the diet and the malignant influence of the climate, both conspire in producing them.

The distinguishing characteristics, causes, and treatment of these diseases, are given in the former part of this work ; the object, more immediately before us, is to *prevent* them. The records of nautical medicine furnish abundant evidence, that if proper precautions are taken in *manning*, *victualling* and *governing* a ship, the diseases, which may, in some measure, be considered as peculiar to a sea-life, would be unknown. The subject is, therefore, addressed alike to captains, owners, and crews.

It has been remarked, that the prevention of diseases has relation only to external causes that affect health ; and some of these will now be considered under the three heads of

1. Air. — 2. Aliment. — 3. Clothing.

AIR.

1. On the air of tropical climates, as a cause of disease among seamen.

In treating on air, as a cause of nautical diseases, it will be considered under two general heads, viz., as constituting *climate*, and as the peculiar atmosphere of the internal parts of ships. Over the first we have no control. The hot and oppressive atmosphere of the healthiest West India stations, and the deleterious effluvia from morasses and marshes of the unhealthy ones, are equally uncontrollable. Whether these, however, shall act as causes of disease on ship-board, depends very much on crews, but still more on their commanders. The state of the air at sea is likewise beyond control. It may be damp, wet and cold, and the demand for almost perpetual exertions on the part of the seamen be too imperious to be evaded under the wish to preserve the health of the crew. But even under these circumstances disease is not a necessary occurrence. Means may be, and are occasionally adopted, which result in a remarkable exemption from disease, where to escape seemed impossible.

As far as climate is concerned, or may become a cause of disease, nothing is more obvious, in inquiring into the means of prevention, than the importance of removing men as far as possible from its influence. The methods by which this may be effected are not quite as evident as the importance of the rule. Some of these methods will now be stated. Experience has abundantly established the fact, that, except the seury, all the diseases incident to vessels are more apt to arise in a harbor than at sea, and particularly the destructive fevers, peculiar to hot climates. While riding at anchor in a harbor, situated in such climates, the habits of seamen are necessarily, in some measure, altered. The regularity of sea-duty is broken in upon, a sudden and great change is made in the diet, a temperature very different from the coolness of sea-air is endured. The harbor may have in its neighborhood, or on its very shores,

extensive marshes, from which the heat of the sun is constantly raising deleterious effluvia. The sun is at times pouring an intense heat on the men while at work, and their duty often calls them on shore, for the purposes of wooding and watering. In such climates, more particularly in the West Indies, spirituous liquors and unwholesome fruits are generally easily obtained, and at times the men, from cluding the vigilance of their officers, sleep in a state of intoxication on the ground on shore. There are also in such climates sudden changes, from excessive heat to cold or cooler air, and generally at night a cold damp air is experienced. There is something so refreshing in this change that the chances of diseases are frequently willingly run, rather than submit to a caution which seems to require too great a sacrifice of personal comfort. The evils, however, which would seem to be the necessary consequences of circumstances, just enumerated, may be avoided, and the diseases, of which they seem almost necessary causes, may be prevented. "I have known," says Sir Gilbert Blane, "a hundred yards in a road make a difference in the health of a ship at anchor, by her being under the lee of marshes in one situation, and not in the other. Where people at land are so situated as not to be exposed to the *air of woods* and *marshes*, but only to the sea-air, they are equally healthy as at sea. There was a remarkable instance of this on a small island, called Pigeon Island, where forty men were employed in making a battery, and they were there from June to December, which includes the most unhealthy time of the year, without a man dying, and with very little sickness among them, though they worked hard, lived on salt provisions, and had their habitations entirely destroyed by the hurricane. During this time near one half of the garrison of St. Lucia died, though in circumstances similar in every respect, except the air of the place, which blew from woods and marshes." Facts similar to these are to be found scattered through all the books which have been written for the preservation of the health of seamen. The practical advantages to be derived from them are plain and obvious to the most common understanding. Diseases of a

fatal nature, occurring in a climate and harbor such as have now been alluded to, are to be checked, where it is possible, by altering the anchorage ; and it appears that in some instances a very small alteration will be found quite sufficient. If circumstances prevent this, other means of prevention must be resorted to.

It is a well known fact, that in the climates alluded to, the winds, after the first hours of the morning, blow from the sea towards the land, and that the land breeze, or the breeze off shore, takes place in the evening, and continues during the night. During the day, therefore, the sailor is in little danger of disease from the effluvia from shore. He is chiefly to be on his guard against the night air. He will best do this by carefully avoiding to sleep on deck ; and by attention to his clothing. Other means of great importance are those medicinal articles which are known to give and preserve the tone of the system, and which experience has satisfied us, will protect men against fevers. Such are the Peruvian bark, and other bitters, the capsicum, and other spices, common to the climates under consideration. In those seasons, therefore, which are known to be unhealthy, these means should be early resorted to, and the consequences will in general be the safety of those who must be, in some degree, exposed to the influence of the causes of disease.

Having now stated the methods by which the health of seamen may be preserved in situations which expose them to the influence of noxious effluvia from morasses, and marshes, I shall in the next place speak of the sensible qualities of the air of hot climates, in their connections with disease.

" If I were required," says Blane, " to fix on a circumstance the most pernicious of all others to Europeans, particularly those newly arrived in the West Indies, I would say, that it is exercise in the sun." The same remark is repeatedly made by Johnson, on the climate of India, Batavia, Java, and the southern coast of China. Heat is not only by itself a very powerful cause of febrile diseases, but the exhaustion which it induces in laboring

men exposes them strongly to the temptation of the excessive use of spirituous liquors, which, next to heat itself, is one of the most hurtful practices that can be indulged. Another excess to which seamen are exposed in hot climates, is in the use of the various fruits which are common to such climates. It is hardly possible to deter men from these practices, and their consequences frequently are, fevers and fluxes, of a very severe nature, and occasionally of a fatal issue.

One of the principal means of diminishing the chances of disease, which may arise from the action of excessive heat, is to employ, as far as it is practicable, the natives of hot climates in the hard labor that may be required for the ship on shore. More especially, let these men be employed to procure wood and water, should these be necessary on ship-board. Of all occupations, the most pernicious is that of clearing a foul hold, in tropical parts, and therefore ships requiring it, should be sent to a more northern and cooler port, and on no account employ the crew in such duties, where natives can be had. In seasons peculiarly unhealthy, let natives be also employed in getting the cargo on board. In this way, opportunities for procuring spirituous liquors will be much diminished, men will more rarely be found exposed, while drunk, to the burning heat of the sun on shore. Fevers, which are among the most dangerous and fatal diseases of hot climates, will be less frequent. There is a peculiar improvidence, and want of all caution, to be observed in the character of sailors. The chances of disease and death are most willingly incurred, for they are never adverted to. It requires more than precepts on the part of officers, to keep the men out of the way of evil. The secret of preserving health, under the exposures now under consideration, is to put the men as far as possible out of the influences of the causes of disease. If anchoring ground is occasionally to be changed, because the present one exposes a crew to the destructive air and morbid effluvia of a low putrid marsh, the officers of a ship in hot climates

are, as far as practicable, to remove men from all other causes of disease.

But as wooding and watering in sickly climates are sometimes the unavoidable duties of crews, it may be expected that those who undertake them, should be furnished with some advice for their preservation.

"I would advise," says Dr. Lind, "all who are employed in cutting down woods, or in other laborious and dangerous services in hot climates, during the heat of the day, to have their heads covered with a bladder dipped in vinegar, and to wash their mouths often with vinegar, never to swallow their spittle, but rather to chew a little rhubarb, or some other bitter, and spit it out frequently; to stop their nostrils with a small piece of linen, or tow, dipped in camphorated vinegar; and to infuse some bark, garlic, and rhubarb in brandy, of which a dram is to be taken either by itself, or diluted with water, morning and evening.

"In the evening, before sunset, they should leave off work, and not return to their labor in the morning, till the sun has dispersed the unwholesome dews and vapors. For their safety during the night, they should retire to a close hut, as the dews may penetrate a tent, and here, in the absence of the sun, a constant fire should be kept; or if that be found impracticable, the apartment in which they lie should be well fumigated with gunpowder, as fire and smoke will afford them a most excellent defence against the noxious qualities of the night air. The smoking of tobacco in their huts, and chewing of garlic, and not sleeping on the ground, are circumstances which will also contribute to their preservation.

"If, from a neglect of these precautions, the nocturnal chill fog has made an impression on the body, a vomit should be immediately administered near a fire, and a plentiful sweat excited after it, which will often prevent fatal consequences. If any symptoms of a low fever still continue, as a headache, sickness of the stomach, chills, &c., a blister ought immediately to be applied, as these complaints, though so slight as not to confine the patient

to his bed, are deceitful, and often terminate in a fatal malignant fever. If this fever can be brought to intermit, let quinine be immediately taken, to the quantity of 4 grains or 2 pills every two hours, and the patient quickly removed into a better air."

When a vessel arrives at a port, in the latitudes now under consideration, whether the voyage has been long or short, the men should be instructed not to indulge freely in the various fruits peculiar to such climates. The exception to this rule will be found in those cases in which scurvy exists in the vessel. They are more especially to avoid the free use of spirituous liquors. They should avoid all unnecessary exposure to the night air, particularly sleeping uncovered on deck, after the fatigues of the day. They should never sleep on shore, and as far as their duty permits, be as little exposed as possible, during unhealthy seasons, to the excessive heat of a tropical sun. These methods of prevention are extremely simple. They can be very easily adopted, and their objects to the merchant service, I again repeat, are extremely important. Suppose for a moment, that a large proportion of a small crew is swept off by the diseases of a hot climate; new men must be shipped, a most difficult and expensive alternative; the vessel must be delayed in port; all the incidental expenses necessarily increased, and very frequently the principal objects of commercial enterprise defeated.

Notwithstanding, however, the use of such means of prevention, as circumstances admit of, should the febrile diseases of hot climates occur, how are they to be known, and how are they to be treated? It would be useless to enter on a detail of the symptoms of such diseases; they are most generally recognized at a very early stage of them, by the captain, or the crew themselves, and their violence, rapidity, and frequently fatal termination, very soon discover their true character: If the disease occur in port, recourse should at once be had to a physician of the place. When a physician cannot be obtained, lose no time in applying the remedies laid down in the

former part of this work. If, notwithstanding the treatment, one or more cases should prove fatal, means should be at once adopted, to prevent the propagation of the disease among the crew, by infection. This may be attempted in the following manner.

Means to prevent the spreading of contagious or infectious diseases in a ship.

1. Let the sick be separated from the healthy ; and thus attempt to prevent its progress, by cutting off all intercourse with each other.

2. Articles of clothing, bedding, &c., have been considered as dangerous vehicles of infection, as the persons of men. "It should be made a strict and invariable rule, that in case of death from fever and flux, every article of the description mentioned, be thrown overboard with the bodies of those dead of these diseases."

3. Should the sick recover, as they might not be able to spare these articles of clothing, &c., they should be smoked, and then scrubbed and washed, before the men join their messes, and return to duty. In ships of war and transports, this direction should be most carefully observed, "because their hammocks will frequently be brought in contact with those of the other men, by being stowed with them in the netting."

4. As infection sometimes adheres to the timbers of a ship for a long time, such cause of disease should be thoroughly eradicated as soon as the disease itself disappears. This can only be effectually accomplished by fumigation. For this purpose, pots of charcoal and sulphur may burn between decks, after having carefully shut the hatches. Dr. Blane remarks, that an action with an enemy has been known to purge a ship from infection. Fires should be more frequent between decks during the prevalence of infection. The decks, beams, &c., should be washed and sprinkled with chloride of lime or hot vinegar. The fume of pitch, tar, and other resinous substances, has a more powerful effect than any other smoke ; and besides what is thrown upon the fires, it

would be useful to throw pitch upon a red hot iron, or to immerse a loggerhead in a vessel where there is pitch or tar.

5. Whitewashing the decks and beams with quicklime, has been found extremely useful in eradicating infection.

6. Let the air of the well and the hold be carefully attended to, and such means used as will best tend to purify it. This may be done by letting down into the well and hold a grate or pot of fire daily, and allowing it to remain there for an hour, and by frequently sprinkling a solution of chloride of lime between the timbers and under the timber boards.

7. The ship should above all things be kept well aired, and as dry as possible. Dr. Blane recommends that scuttles be cut in the sides of frigates destined for the West India station, in order that a free circulation of air may be maintained through the decks, whenever necessary. Some captains, who have been convinced by experience that a moist or wet state of a ship is the most frequent cause of disease, are in the practice not only of abstaining from pumping in water in order to sweeten their ships, but *bail* out the water from the well, when the pumps will not exhaust it all, and never let their vessels make above five inches. Where, however, from previous neglect, or unavoidable leakage, a ship becomes very putrid below, it may be advisable to pump in water, in order to remove these causes of disease from the crew.

Signs of an unhealthy country.

In giving directions for the preservation of seamen in hot and sickly climates, it will be proper to enumerate the most certain signs or proofs of an unhealthy country — extracted from the writings of Dr. Lind.

“The first proof of an unhealthy country is a sudden and great alteration in the air at sunset, from intolerable heat to a chilling cold. This is perceived as soon as the

sun is set, and for the most part is accompanied with a very heavy dew. It shows an unhealthy, swampy soil, the nature of which is such, that no sooner are the sunbeams withdrawn, than the vapor emitted from it renders the air raw, damp, and chilling, in the most sultry climates ; so that even under the equator, in some unhealthy places the night air is cold to a European constitution.

"The second is, thick, noisome fogs, arising chiefly after sunset from the valleys, and particularly from the mud, slime, and other impurities. In hot countries the scent of these fogs may be compared to that of a new cleaned ditch. Diseases, therefore, arising from this cause, generally take place in the night, or before sun-rising.

"The third is, numerous swarms of flies, gnats, and other insects, which attend stagnated air, and unhealthy places covered with weed.

"The fourth is when all butchers' meat soon corrupts, and in a few hours becomes full of maggots ; when metals are quickly corroded on being exposed to the open air ; and when a corpse becomes intolerably offensive in less than six hours. These are proofs of a close, hot, and unwholesome spot. In such places, during excessive heats and great calms, it is not altogether uncommon for foreigners, especially such as are of a gross habit of body, to be seized at once with the most alarming and fatal symptoms of what is called yellow fever, without any previous complaint of sickness, or other symptoms of the disease. There has first been perceived an uneasy itching sensation, commonly in the legs, and upon pulling down the stockings, streams of thin dissolved blood followed ; a ghastly, yellow color quickly diffused itself over the whole body ; and the patient has been carried off in less than forty-eight hours.

"The fifth is, a sort of sandy soil, commonly a small, loose, white sand, such as that at Pensacola, Whydah, and the Island of Bonavista, which is found by experience to be injurious to health."

2. *On the air of temperate climates, more particularly sea-air, as a cause of disease among seamen.*

In the preceding pages, some of the diseases of hot climates were mentioned, and the means of prevention pointed out. The following section will be principally devoted to the consideration of the influence of cool air over the health of seamen at sea. This cause of disease will be found to act most powerfully, when assisted by the debilitating effects of unusual fatigue, and of the unwholesome diet a crew is at times obliged to use, in the course or near the close of a long voyage. Men who have in a great measure recovered from some of the severer diseases incident to a sea-life, by the help of mild, warm, and dry weather, even though the diet has remained the same, have sunk with astonishing rapidity, and died, merely from entering a higher latitude in a cold season. The necessary exposure, incident to ordinary ship duty, in the cold and damp air into which they have newly, and perhaps suddenly arrived, has as suddenly been followed by an astonishing fatality. It is therefore of the last importance that men situated as those alluded to, should, as far as possible, be removed from the influences of cold and moisture.

The diseases by which most suffering may be endured under these circumstances, are, complaints of the chest, rheumatism, and the scurvy. The first, from the imperfect means of relief afforded on shipboard, and the perpetual new exposures of a sea-life, will in many cases become a chronic complaint, and from the diseased condition of the lungs induced by it, be followed by consumption. Hence we actually find that a large proportion of the deaths which happen in our marine hospitals, are from pulmonary consumption. Chronic rheumatism, if not so fatal, is hardly a less distressing complaint than the one just mentioned. Men are disabled by it, they are rendered unfit for duty ever after, and this too, generally in the prime of life. The consequence is, that they either become the permanent residents of a hospital, or lead a useless, va-

grant life in the streets. The scurvy, which occurs in all climates, though more frequently in the cold and temperate, will be considered hereafter, when speaking on the subject of diet. To prevent these diseases will be a much easier task than to cure them. When a man falls sick at sea, nothing is more common, than either to consider his complaints imaginary, or to take up the impression that the disease, from some fancied resemblance, is exactly similar to one casually observed by the patient, at some previous time, in some one or more of his shipmates. The next step is most vigorously to adopt the treatment which in such case was found to be salutary. "A man who had been extremely ill of the fever of Calcutta, suffered a relapse at sea; calomel had been prescribed by a physician in the first attack with advantage, and the same remedy was now freely used by the man himself at sea. He recollects also that he had seen a severe case of fever treated successfully by dashing pailfuls of sea-water over the patient, and at four in the morning, went on deck and submitted for some time to the same treatment. His superior officer remonstrated, and forbade the men to continue or repeat the operation. The calomel and cold affusions, however, were repeated at the same time the next morning. Delirium and violent fever followed, and although the patient survived the first consequences of the treatment, he ultimately sunk exhausted under the disease."

In temperate climates, coughs and colds, pain in the side, difficulty of breathing, with heat of the skin, and thirst, are common complaints of sailors, and seem to be caused as follows. The apartments in which sailors sleep are extremely liable to become heated at night, in consequence of the number of men sleeping in them at the same time, and from their necessary closeness at such periods. In order to avoid the evils which would follow from allowing a free current of air through the berth-deck at night, the avenues to the air are closed, and the sailors take their watch on deck in a full perspiration, or at least in a state which renders them peculiarly susceptible of inflammatory diseases. Hence the inflammatory affections of the lungs

under consideration. The most obvious causes are here principally alluded to ; the symptoms and treatment are given in the former part of this work. How are we to prevent these evils ? To diminish the number and lessen the violence of lung diseases, inasmuch as they proceed from the causes now mentioned, it would seem principally necessary to diminish the exposure of men to cold, especially after being in a situation with regard to warmth, of all others the most favorable for the production of these affections. To keep the berth-deck cool at night, without exposing the men while asleep to a free current of air, the air-pipes lately invented by a Mr. Sutton, are admirably contrived. They consist of tubes leading from the berth-deck and hold, into the open air. Wind-sails need not be mentioned, as they have been in use time out of mind. "The extreme of cold ought equally to be avoided during sleep. Many pulmonic affections are caught by men falling asleep in the open air, on their watch." If men must be turned out at night, to take their watch, and in case of sudden squalls, storms, &c., they may be still farther exposed, they are to be guarded from the evil consequences which may ensue, by proper clothing, particularly by flannel worn next the skin, and by overcoats of tarpaulin or India-rubber, the cheapness of which at the present day will enable the officer of the deck and the helmsman to be always provided for stormy weather. This will be an essential precaution against such inflammations, in cold climates and seasons. Another, however, equally important, is to change the clothing when wet; for which purpose every sailor should be provided with at least two or three changes of clothes, and should avail himself of every fair day to dry them. Other means for lessening exposure to damp air, whether warm or cold, have been particularly mentioned in the former part of these directions.

With regard to rheumatism, the same causes operate in producing it, as catarrhal affections. More frequently, however, it is induced by wearing wet clothes and sleeping in the cold. Persons who are thus exposed, while under the influence of mercury, are more likely to suffer, and are

with great difficulty relieved. As a preventive of rheumatic attacks, thick flannel, constantly worn next the skin, is highly important. Being a bad conductor of heat, it prevents the body from experiencing such sudden changes of temperature, as it does when cotton or linen are worn.

DIET.

Diet is properly divided into solid food and drink. Of the former, the chief articles given out for a ship's company, are salted meat, biscuit, and pease. The first, though unavoidably used in this state, may be considered, more than any other article employed, as the cause of disease; and as it cannot be corrected either by the biscuit or pease, it requires either to be abridged in the quantity used, or else to be conjoined with such vegetables as are of a correcting nature. But as a sailor's life in a merchant vessel is a hard one, and those subjected to it require a large proportion of animal food, the quantity usually allowed cannot well be diminished. The only alternative, then, is to qualify the salt provisions by such vegetables as correct their bad qualities, particularly that of producing scurvy. These vegetables are, all the succulent or juicy fruits; and such should be laid in, as are capable of preservation during sea voyages. Among the best are lemons and oranges. Since the juice of the former of these articles has come into general use in the British navy, scurvy has quite disappeared. "The power it possesses over this disease," says Sir Gilbert Blane, "is peculiar and exclusive, when compared to all other alleged remedies. Its efficacy may also be stated as singular, when compared to that of any other remedy in any other disease. It is a certain preventive as well as cure; no other remedy yet known, can ward off this dreadful scourge of mariners, for an indefinite length of time, under the use of salt provisions."

In the former part of this work I spoke particularly of this acid in a concrete state, as being valuable both for its antiscorbutic qualities, and imperishable nature. In the latter respect it is worthy of a place in every medicine

chest. The article is, however, expensive, and on this account, may be objected to. In this case I would strongly recommend supplying ships on long voyages, with the lemon juice, as is done in the British service ; since as much can be laid in for a trifling sum, as will be adequate to every medicinal purpose, and without its taking up much room. The quantity which, in the British navy, has been found sufficient to ward off the scurvy during a six months' cruise, is one ounce to a man per day. At this rate a gallon would serve for ninety-six days, which is but little short of the average length of East India passages.

In concluding the subject of animal food it may be well to describe a new method for preserving fresh meat, which was proposed by a Mr. Appet, and has been found, by ample experience, to be perfectly successful. The method is as follows :—“The fresh meat is put into a pot, the bones being first removed, to be boiled in the ordinary way. When it is about three-fourths boiled, it is to be taken out and put into jars, which are filled up with broth made from other portions of the same meat. The jars are then corked, luted, and put into bags ; they are newly placed in a boiler of cold water, heat is applied till the water boils, and the boiling temperature is kept up for an hour ; the fire is then extinguished, the water then drawn off from the boiler, and the bottles or jars taken out, which completes the process.” For the sick and convalescent a sufficient quantity of provisions thus prepared, might be supplied with little expense, and hereafter, it may be managed on a larger scale, so as to render fresh provisions occasionally available to the whole of a ship’s company.

The next article of sailors’ diet to be considered is bread. It is given at sea in the form of hard biscuit. By long keeping, these lose much of their nourishing principle, and in warm climates they are liable to become acrid and produce complaints of the bowels. To avoid the danger of sickness from this source, it would be better that only a certain quantity of biscuit should be carried to sea, and an equal or greater proportion of flour, of which bread could be made. Flour, by being well pressed and rammed, will

keep as long as biscuit, and can be stowed in one-fifth part of the space. Thus the freight of it would be less than that of biscuit ; and it could be baked as occasion might require. This plan of baking at sea has been constantly practised in the French navy ; and has likewise been adopted in the British service at different times, under peculiar circumstances, when the superior advantages of it have been very apparent. What is chiefly wanted, to render it complete, is a substitute for yeast ; and such a substitute may be formed in the following manner : " Let a quantity of yeast be spread thin upon boards, and exposed to a moderate degree of heat, so that the humidity may be evaporated, and that it may be left in a dry granulated state. It must then be put into phials well corked and sealed. Let there be next a strong solution of honey, or molasses and wort, into which throw a small proportion of the above powder, and in the ninetieth degree of Fahrenheit a brisk fermentation will be soon excited, perfectly qualified for every purpose for which wort is employed. Bread made in this manner will possess every advantage of that baked on shore ; and the trouble attending the preparation of it will be very trifling, compared with the benefit which both the healthy and sick will derive from it."

Upon the articles of peas, or beans, we have little to say. They are evidently very nutritious, and agree well with the stomach of a seaman, whose digestion is strong.

Indian meal, rice, barley, raisins, and molasses, are articles much used at sea, and make up an agreeable variety. To these, potatoes are a most valuable addition, as they are known to keep a great while in warm climates, and, as we have observed while speaking on scurvy, are in their raw state an excellent antiscorbutic.

" One article we must not omit to mention here as being a good one, in so far as it renders that part of the diet, which consists of grain and vegetables, more palatable, and thereby induces the seamen to eat more ; this is butter. The principal objection to it is its tendency to rancidity, and to corrupt in a warm climate ; but even this inconvenience may be counteracted by proper precaution. By the

following method it may be preserved sweet, and in a solid state, during a three years' tropical station, provided it was originally in this condition. Instead of firkins, let it be put in waxed canvass bags, containing each about fifty pounds weight. Let these bags be thrown into casks constantly kept filled with salt water, which should be renewed once or twice a week, according to circumstances, by drawing off the old from a cock fixed near the lower end, while the new water is admitted from a bunghole made in the upper end. By this plan, the butter will be preserved always sweet."

The above remarks on the salutary effects of acid fruits and juices in sea diet, may lead one to attach an undue importance to them at all times, and to use them freely, even in sickly ports. In such situations it must be recollecteet that scurvy is not to be apprehended, and that large quantities of fruit, especiially if cold or unripe, are often-times productive of cholera morbus, fluxes, and fevers. This circumstance was particularly mentioned, when speaking on "the air of tropical climates as a cause of disease."

From the consideration of seamen's food, we proceed to that of drink; and first of water.

"Water is the best, and certainly the only natural drink of man. It has been considered by many as one of the prevailing causes of scurvy, when of a bad quality. As the health and comfort, therefore, of the men at sea depend so much on its purity, particular attention should be paid to this beverage. Spring water is preferable to any other for sea use, seeing that is less apt to be impregnated with decayed vegetable and animal substances, than running and stagnant waters. This preference is more especially to be attended to in warm climates, where every thing, it may be said, teems with life, and where the materials of putrefaction are so abundant. Where river water must be taken, which often happens in warm climates. although it may be drawn as near as possible to its source, yet certain preeautions should be employed before it is used. These consist in throwing a handful of lime into each cask, or dissolving two ounces of alum to a hundred gallons, or

passing through it a red hot iron several times, or even throwing into it a little burnt biscuit." Water, however pure it may be collected, is always apt to corrupt when kept in wooden vessels, and this is one of its greatest inconveniences at sea. Different methods have therefore been fallen upon, either to prevent this corruption, or to counteract it when it has taken place. The former consist in various modes of preparing the vessels that hold the water; and it must be observed, that there is a great difference in this respect, between a new cask made of moist wood, and one that has been hardened and seasoned by age and use.

One method of preparing the vessel is by firing the cask, when putting the staves together, until a charred coat is extended over its whole surface. This will preserve the water pure and sweet for any length of time, and will have the same effect as another improvement, that of filtering it through charcoal, which has been found to correct the most putrid state of the fluid, and to render it wholesome and pure, although somewhat insipid. The most common expedient, however, for the purification of water, has been by quicklime.

This is equally effectual, whether slackened or unslackened; but should always be carried slackened to sea, to obviate the danger arising from heat, which is apt to ensue on its being touched by water in its unslackened state.

To counteract the bad taste of water in a state of putrefaction, vinegar and other vegetable acids are usually employed. A still better method is, to put two ounces of chloride of lime into 60 to 100 gallons of water; after a day or two the water, when allowed to stand awhile in an open vessel, will be freed from its putrid smell.

Various methods have been used for purifying water by filtration. The dripping stone is often used for this purpose, but for a large crew the quantity it affords is insufficient. Pouring it through gravel, or a layer of gravel and charcoal, will afford a more abundant supply, and be equally serviceable.

A very simple filtering machine is mentioned by Dr.

Blane. "Let the narrow mouth of a large funnel be filled with a bit of sponge, over which let there be a layer of clean gravel, or of sand, covered with flannel, and over the whole another layer of sand. Muddy or offensive water, being poured into this, runs or drops out clear; and care must be taken to change the sand, sponge, &c., frequently, as they will become loaded with the impurities of the water."

These remarks on the purification of water, we shall follow with directions for distilling sea-water, for the benefit of those who have used or lost all their fresh water at sea, and may not have taken the precaution of carrying out a still-head.

"When sea-water is boiled in a close covered pot or vessel, it may be observed, that the steam arising from it is converted into fresh water on the inside of the cover of the pot. From a pot of thirteen inches diameter, by frequently removing the cover, and pouring off the water collected upon it, a gill of fresh water may be procured in an hour. The cover of the pot should be at least five or six inches above the surface of the sea-water, to prevent its boiling up to it.

"Let us suppose a ship at sea to be in distress for want of water, having eight men on board, and that the pot for boiling their provisions can contain five and a half gallons, being twelve inches in diameter; by the following simple contrivance, with only a tea-kettle, a musket, and a cask, one gallon of fresh water may be procured every three hours, which is a pint for each man.

"File off the handle of the tea-kettle, and fix the head of the kettle, when inverted, into a hole made for that purpose in the cover of the pot; this will prove a complete still-head. Take the barrel of the musket out of the stock, and after unscrewing the breeching-pin, pass the barrel through the cask by two holes made on each side, with a proper descent for the distilled water to run off; then stop up the holes in the cask, and fill the cask with cold sea-water; which will be a refrigerator or cooler to condense the steam. In order to carry on the distillation, they should be joined, by inserting the spout of the tea-kettle into the

upper end of the musket-barrel ; all the joints and places from whence the steam could escape should be luted or stopped up ; a paste, composed of equal parts of chalk and meal, moistened with salt water, will do this effectually, and may be easily obtained ; the tea-kettle and cover of the pot should also be kept down by a weight, to prevent the steam from forcing them up.

“ If the cask should be too near the fire, the musket-barrel, in which the steam is condensed, may be prolonged by the addition of the barrel of another musket, or by a wooden pipe. If the barrel of another musket be used, whose bore is not large enough to receive the extremity of the former, one end of it should be heated in the fire, and dilated with a marline spike. If a wooden pipe be used it should not be bored with a hot iron, as it is found by experience that burnt wood will impart a permanent disagreeable taste to the distilled water.

“ If we may suppose a ship at sea to have no tea-kettle on board, then let the wooden hand-pump, with which the water or beer is pumped out of the casks, be cut through obliquely, and joined so as to form an acute angle. One end of this tub should be fixed into the hole made in the cover of the pot, the other should be fastened to the musket-barrel. By this nearly the same quantity of water may be procured as by means of a tea-kettle.

“ It may justly be supposed, that the coppers used for boiling the provisions will, in every ship, contain more than the proportion of two quarts of water for every person on board ; if these were furnished with proper still-heads, they would be sufficient to yield in distillation the proportion of three pints of fresh and wholesome water for each man. In a British ship, called the Dorsetshire, by means of a tea-kettle and musket-barrel, twenty-two quarts of sea-water yielded nineteen quarts of fresh water in four hours, at an expense of ten pounds of wood.” When sea-water has thus given off two-thirds of its bulk, the remaining third will be too salt for distillation, and should be thrown away, and the vessel should be replenished from the sea.

“ The distilled sea-water is purer than spring, river, and

even rain water. The taste which it receives from the distilling vessel is, in some measure, lessened by throwing away the first running from the still; and is wholly removed by keeping the water for some time, or exposing it to the air, when it will be found an excellent well-flavored water, which will keep perfectly sweet for many years, if put into clean vessels.

"In cases of extremity, such is the constitution of our body, that thirst may be alleviated, and the morbid consequences, arising from a want of water, obviated, by wetting the skin or surface of the body with sea-water, which becomes thus absorbed, and answers, in some degree, the common purpose of drink."

"The pernicious effects of ardent spirit in very hot weather, and when heated by exercise, have already been adverted to. In such situations, molasses and water, tea and sugar, small beer, lemonade, soda water, or water slightly acidulated with vinegar or cider, are most conducive to health."

OF CLOTHING.

The chief object of attention in a seaman's clothing is to guard against moisture. This moisture, according to the climate he is in, must be accompanied either by heat or cold. A covering, therefore, which will protect the body in both situations, is the great object to be aimed at; and no substance is so well calculated for this purpose as woolen. By its use the suppression of the discharge from the skin, the great source of all inflammatory diseases, is prevented, and the skin itself being kept as it were moistened by its own secretion, the natural heat is thus retained, and the access of the external air prevented.

Although in the warmer climates this covering is less necessary for the sake of warmth, yet it is well known, that exposure of the body is apt to produce a general uneasy irritation upon it, and even to lay the foundation of many dangerous affections. Besides this, the excessive

discharge of the skin, which then takes place, is absorbed by this covering, and thus the after consequences of cold are avoided. Even the night damps, in such situations, are greatly counteracted; and the dry bellyache, and many other complaints, seldom occur in the West India service, than they did before woollen was preferred to cotton or linen. From the advantage of such clothing, it is of great importance that every seaman should have a proper supply of it, and that the captain should lay in a small supply for his crew, suited for the station to which the ship is destined. This subject merits particular attention from the captain, for in general, sailors are too indolent and improvident to suit their dress to circumstances, unless they are forced to it; "nor is anything more common, than to see some of them with linen trowsers in the severity of winter, and a pair of greasy woollen ones in the hottest of summer."

In hot climates, the dress should be white, even to the hat and shoes. In cold climates a kind of cloth called Fearnought is very suitable. After a rain, both clothing and bedding should always be dried, and whenever the weather will admit of it, bedding should be aired every day.

On the subject of cleanliness of person and clothing, nothing need be here said, since every commander of a merchant vessel must be fully sensible of its importance.

CONCLUSION.

The foregoing directions, for the prevention of disease among seamen, may be briefly comprised in the following particulars:

- In hot climates.* 1. In choosing anchorage to the windward of the land.
2. In keeping the ship dry, clean, and ventilated.
3. In preventing the crew from sleeping on shore or on deck.

4. In their avoiding violent exercise under a scorching sun.

5. In employing natives to wood and water the ship. Where these duties must necessarily be performed by the crew, use the precautions recommended under such circumstances. See page 132.

6. In avoiding entirely the use of all stimulating liquors, and in abstaining from the free use of cold fruits, and especially those that are unripe.

7. In adapting the dress to the temperature of the weather; wearing flannel, however, next the skin at all times.

8. When disease of a malignant character has already appeared on ship-board, in arresting its progress among the crew by the "means" formerly recommended "to prevent the spreading of contagious diseases in a ship." See page 134.

In cold climates. 1. In wearing flannel next the skin.

2. In preserving the lodging rooms, whether berth-deck, cabin, or forecastle, of an equable and rather cold temperature. In this way the sudden transition from heat to cold, so often experienced, when called out to take watch on deck, and which is one of the most productive causes of disease in cold climates, will be avoided.

3. In dissipating the moisture of the lodging apartments every day with fires, and in scraping and *holystoning* the deck instead of washing.

4. In changing the clothing when wet, and in keeping the bedding dry and well aired.

5. In avoiding ardent spirits.

While at sea, in all climates. 1. In using freely of vegetables and other antiscorbutics, particularly vinegar and lemon-juice. An ounce of the latter per day to a man, or a pint for twelve days, will, as I have formerly observed, (p. 140,) prevent the scurvy during the longest sea-voyages, even when confined to a diet of salt meat.

2. In using pure and wholesome water.

3. In observing cleanliness in person and clothing.

THE SEASONS OF SICKNESS, AND THE DISEASES INCIDENT TO STRANGERS IN DIFFERENT SEA- PORTS IN THE WORLD.

To owners and masters of vessels, who are fitting out ships for foreign voyages, it may be of some importance to know particularly when and where diseases are most prevalent; and to travellers who contemplate visiting foreign ports and wish to arrive in them in a healthy season, this subject must be particularly interesting. The account here furnished is very imperfect, and is principally taken from the writings of Lind and Turnbull.

Seasons of sickness, and the diseases in the seaports of the United States, and the British ports eastward.

New England and Eastward. In the summer and autumn, there are a few cases of inflammatory fevers, occasionally a case of low typhus and some bowel complaints. Bilious remittent fever occurs very rarely, and still more so intermittent fever. In the heat of summer, the yellow fever appears once in twenty or thirty years, in one or two of the principal seaports.

The winter season is most sickly, and the prevailing diseases are inflammations of the chest, as pleurisies, catarrhs, sore-throat, &c. Rheumatism and frost-bites are very common disorders. The greater number of deaths are occasioned by pleurisies and consumptions.

Middle and Southern States. Travelling along the seaboard, from New Jersey to Virginia, where the heats are greater, and the soil more moist, especially in the neighborhood of woods or stagnant water, we find agues, fevers, and fluxes, of very frequent occurrence among strangers. The agues are apt to terminate in liver complaints and dropsies. The winter season is, however, less productive of inflammatory complaints here than in New England.

In *Carolina* and *Georgia*, we find the summer and autumnal diseases last mentioned, much more obstinate, acute, and violent. In the months of July and August, they sometimes partake of the nature of West India fevers. The winter season is healthy.

In *East* and *West Florida*, the summer diseases approach still nearer to those of the West Indies. In some seasons the excessive heat, with the concurrence of other circumstances, produces the yellow fever. In other seasons, however, there is quite an entire exemption from this and all other violent fevers, from Carolina to New Orleans. Pensacola seems to be rendered unhealthy by its sandy and barren soil. In Mobile, intermittent fevers are very prevalent in the months of July, August, and September. The winter seasons are generally healthy in the Floridas.

Most unwholesome seasons, and the diseases in the West Indies.

Comparative degree of health in the different islands.
“The most healthy of all the English possessions, in this part of the world, is the Island of Bermudas ; next to which is the Island of Barbadoes, if we except that spot of ground upon which Bridgetown, its capital, is situated. The air, in many parts of St. Christopher’s, is also pure. That of Antigua is bad, and that of Jamaica is reckoned still more unhealthy ; though much less so than it formerly was. The color of the European inhabitants in the island of Montserrat, is a proof of the salubrity of its air ; the same may be said of Nevis. In general, the rainy season in those islands happens in August, September, October, and November. In the settlements on Grenada, the Grenadines, and particularly at Tobago, the health of the inhabitants has been little attended to. In the island of St. Vincent, the town of Kingston is rendered very unhealthy by an adjoining morass.

With respect to the settlements of other European nations, we shall briefly observe, that the French settlement of Cayenne has proved very sickly. The climate of St.

Domingo is also unhealthy; that of Martinico less so. At Gaudaloupe, Martinique, and most of the other French West India islands, there are low, swampy grounds, commonly called Basse Terre, which are particularly unhealthy.

The Dutch settlements at Surinam, St. Eustatia, and Curraçoa, are all very unhealthy.

In different parts of the Spanish West India dominions, the air varies greatly in point of purity, according to the situation of the places. The port of Havana, in Cuba, is sickly, while the highlands are not.

The most frequent and fatal diseases in the West Indies are,

1. Fevers, viz., the bilious remittent fever and the yellow fever. The former is here so violent and rapid that it often proves fatal between the third and seventh day. It chiefly prevails during the months of June, July, and August, beginning to abate in September. The latter, or yellow fever, is the most fatal disease of the West Indies. Its attack is so sudden and violent, that oftentimes the patient is thrown down, almost insensible, without any previous complaint. Vomiting and headache attend him till within a few hours of his death, when he experiences a slight abatement of his distress, but soon after relapses and dies, not unfrequently in between twenty-four and thirty-six hours from the commencement.

2. Dysenteria, which, in point of frequency, comes next to fever in the East and West Indies.

3. Dry bellyache or colic, which occurs often.

4. Tetanus or lock-jaw.

5. Fish poison, which is of frequent occurrence.

"It is a general observation that women enjoy much better health in the West Indies than men, and are not so subject to the yellow fever as they are, owing, probably, to their more temperate way of living."

The following table recently drawn up by the British commissioners of health, is extracted from the London Quarterly Review, of July, 1840, and exhibits the annual ratio of mortality per one thousand mean strength of British troops in the British West India islands.

ANNUAL RATIO OF MORTALITY.

	Bermuda.	British Guiana.	Trinidad.	Tobago.	Grenada.	St. Vincent.	Barbados.	St. Lucia.	Dominica.	Antigua.	St. Kitts.	Jamaica.
By fevers.												
Diseases of the lungs.	11,	52,9	61,6	104,1	26,3	11,2	11,8	63,1	49,3	14,9	42,1	101,9
“ of the liver.	8,7	6,4	11,5	11,1	6,6	10,5	15,8	12,5	8,3	9,5	2,2	7,5
“ of the stomach and bowels.	,5	1,	1,1	2,	4,5	1,6	1,4	1,	1,7	2,8	1,	1,
Diseases of the brain.		5,3	8,9	17,19	24,	16,1	24,2	20,8	39,3	70,3	9,2	10,3
Dropesies.		2,	4,4	4,7	5,	4,6	2,8	3,3	4,3	5,3	1,9	2,8
All other diseases.		,6	1,2	7,7	3,5	,8	1,6	2,4	2,	,7	1,4	2,6
Total.	28,8	77,7	105,5	152,8	61,8	54,9	58,5	122,8	137,4	40,6	71,	121,3

The Western shore of South America and the Islands of the Pacific.

In turning Cape Horn, whether outward or homeward bound, inflammatory affections are very common, as rheumatism, catarrhs, pleurisies and pneumonias, all which should be carefully guarded against by warm clothing.

The coast of Patagonia is healthy, and nearly so is the coast of Chili, particularly Valparaiso ; but the inland is less so. Santiago, situated ninety miles inland from Valparaiso, is remarkable for the extreme heat of the day and coldness at night. Remittent and bilious fevers are here very frequent.

Lima is tolerably healthy, much more so than places of corresponding latitude on the western shores of Africa. The air is too arid, and is unfavorable to pulmonary diseases ; it is moreover enervating and injurious to persons who reside here for any length of time. The remarkable property of the atmosphere to dry up moisture, (as is evinced in the manner of curing jerked beef merely by hanging it in the open air,) is probably one cause of there being no malignant diseases arising from putrid exhalations.

Coquimbo, situated three degrees further north, is very healthy. From Guayaquil to Panama, the coast during the wet season is rather unhealthy, fevers and fluxes and liver complaints being the prevailing disease. But as a general remark, it may be said that the whole western coast of America is quite free from all malignant fevers, and from the destructive fluxes that prevail in corresponding latitudes in the other hemisphere.

All the islands lying in the eastern longitudes of the Pacific, as the Sandwich, Fejee, Friendly, Society, and Gallapagos, and all others near them, are very healthy. Essex Bay, situated in the Gallapagos, is often visited by whalemen. Emigrants from Guayaquil have made settlements there.

Payta, an island only three days' sail from Callao, has

a clear, dry atmosphere, and regular winds that moderate the extreme heat of the day, and the changes of temperature are very slight. It is the port of Piura, a city having a population of 4000, and derives its name from the purity of its air. The cruising ground of whalemen is directly off this port, and in consequence of its excellent climate, fine market, and easy access, is much frequented by them.

Diseases of Persons on their way to California, both by Sea and Overland; also after their Arrival; with Directions for their Prevention and Treatment.

The former editions of this book were silent respecting climate and diseases on the Pacific coast, north of Panama. Vessels rarely touched at any of the ports, which are few and far between, and the population in them comparatively small, having declined ever since the country became independent of Spain. Within the last two years, however, the gold fever has become epidemic throughout the Union, causing a rush of people to California, who, being strangers to its climate, and ignorant of the perils and vicissitudes to be encountered in going, and after their arrival, stand in great need of advice for preserving their health. Having been at much pains to collect information, we shall give advice to persons crossing the isthmus of Panama to San Francisco and to the gold placers; also to those who take an overland passage, commencing with the Gulf of Mexico.

The sickly season in the Gulf of Mexico, the Bay of Honduras, and the Musquito shore.

Vera Cruz and Tampico are apt to be very sickly, especially during the rainy season; the same remark applies to nearly all the ports at the mouths of rivers; also to those in the Bay of Honduras and in the Gulf of Nicaragua, especially to Chagres. During the periodical rains, the attending sickness is much more violent in the hot, marshy, and woody places on the continent, than

upon the neighboring islands. The inland provinces are, however, more healthy than the seaboard. Some of the harbors are fatal from want of due ventilation. Vessels are in danger of tempests and shipwreck if anchored in open roadsteads on the one hand, and on the other of consuming sickness when secured from tempest by surrounding highlands. This is the case with port Maho, near the island of Ruattan, and partially so in other ports.

The Bay of Honduras and the Musquito shore, although very unhealthy, are less so than Carpenter's River, and Rio Morte, or the River of Death in the Gulf of Mexico. This was so named by the Spaniards, from the death of all of that nation who at different times have attempted to make a settlement upon it. The English, however, have since, by settling on a different spot of ground, been more fortunate, and call it the *new river*.

The diseases in the sickly ports in the gulfs and along the Atlantic shores to Chagres, are so near akin to those of the West Indies that it is unnecessary to repeat them. The means of prevention are laid down on page 148.

There is every reason to hope that within a brief year or two, a railroad will be constructed across the Isthmus of Panama from Chagres, when directions for travellers to preserve their health, now so necessary, will not be needed.

Travellers should remain as short a time at Chagres as possible, and must urge the boatmen onward; take but little baggage, and in packages of not more than fifty pounds each, and keep their eyes upon it; take two or three days' provisions; avoid drinking much of the mountain and river streams. Ale, claret, or port wine may be mixed with the water in small quantities; but brandy is too heating. They should avoid the heat of the sun, and the night air, and excessive fatigue; abstain from fruit, excepting an orange or two in the morning; keep as dry as possible, and wear flannel next the skin. In the dry season, leave the boat at Gorgona, but at other seasons keep on eight or ten miles farther to Cruces, where mules

are obtained for crossing to Panama, the distance to which is thirty or forty miles.

Arrived at Panama, they will find a more salubrious climate than they left on the other side of the isthmus. "The morning is always clear and beautiful, with a fine air from the sea; the thermometer during the hottest part of the day 80° to 85°, relieved by a refreshing sea-breeze, which usually sets in about noon and continues till sunset, followed by nights cool and comfortable. This continues about six months, from the beginning of the dry season, when the rainy season approaches, and although it rains every day for at least four months, yet the afternoons are usually clear and pleasant. The atmosphere is of course sultry during this season, but with proper care is not unhealthy.

"The so-called *Panama fever* occurs rarely, unless previous disease has wasted the powers of life, or fatigue and long exposure to the hot sun or rain, and an undue indulgence in the fruits of the country, have predisposed the system to an attack."

On leaving this for San Francisco be sure to go by steam. The calms that befall merchant vessels, and the danger to health and life resulting from them, are very much to be dreaded. Perhaps there is no coast of the world where steam is so decidedly preferable to sails, as on the Pacific, and especially along the coast of Central America and Mexico, from Panama to San Francisco.

On leaving Panama and turning Point Igaera, the first port two hundred miles distant and near the shore is *Esparsa*, a small town in Central America. Nieoya, a hundred miles farther, is a more inland town, on a river running into a deep bay of that name.

Realejo is situated two hundred miles farther along the coast, and four or five miles from the ocean. It will be noticed more hereafter, as connected with the overland route through Lake Nicaragua. There are some small towns along the coast before we reach *Tehuantepec*, in the gulf of that name, 600 miles from Realejo, and 1200 from Panama. It is also connected with another over-

land route. It is a dangerous harbor, on account of shoals and strong currents, and is dreaded by navigators.

Acapulco is 300 to 400 miles farther along the coast, and 1,500 from Panama. It is represented as the best harbor and neatest city on the whole coast. It is about 280 miles in a southerly direction from the city of Mexico.

Zacatula is the next important town, on a river of that name, about 180 miles from Acapulco ; and after passing some small settlements, we reach *Port St. Blas*, an important place, connected with another overland route, and also for ships to obtain supplies. Over one hundred miles north of this is *Mazatlan*, at the entrance of the Gulf of California. It is a neat place of much trade, having some handsome stores and dwellings. It is the principal commercial port of Mexico on the Pacific, with a population of some 10,000. It is connected with an overland route.

Cape St. Lucas is on the opposite side of the mouth of the gulf, and is the terminus of the California peninsula or cape. The coast of this cape has some small Catholic missionary stations, but there is no place of commercial importance until we reach *San Diego*.

San Diego, the first town belonging to the United States, and situated near the boundary line, is on a neat little bay, and the place is destined to grow rapidly, now that it is ceded to Yankees.

The next place deserving notice is *Santa Barbara*, which ranks in importance with San Diego. They were formerly noted places of trade in hides and tallow, and are destined to revive by the ready sale of all the provisions they can supply to shipping or send to San Francisco.

The next place is *Monterey*, now a military post. It presents a neat appearance from the sea, and is a more desirable residence than San Francisco, being more exempt from the sudden transitions and chilling blasts, and having good water. Prior to the gold-digging, it was the seat of government. The harbor is rather too open for

safety. A few hours' sail from this brings us to *San Francisco*.

The diseases to which persons are most liable on the passage from Panama to San Francisco, vary according to the length of the voyage, which depends chiefly upon the choice of vessel, whether steamer or sailer; also whether crowded or otherwise. In steamers the passage is so short that scurvy has no time to produce its victims. Touching as they do at several ports for vegetables, the passengers are supplied sufficiently to prevent their suffering from this disease. The fevers, too, which occur in crowded sailing ships in the dead calms they encounter on this voyage rarely occur in steamers, whose voyage from port to port is comparatively short, and will allow the vessel to be often cleansed and ventilated, and preserved healthy. Hence with ordinary care, the occurrence of fevers and scurvy, which are most to be dreaded, may be entirely excluded from steamers, whilst in sailing vessels, especially if crowded with passengers, they will hardly escape sickness and loss of life, if long becalmed.

Sailing vessels for such long voyages should be well supplied with vinegar, lemon-juice and potatoes. On entering any port for supplies, the free use of fruit should be prohibited, or fluxes are sure to follow. Passengers on going ashore at any of the ports should avoid fatigue in the middle of the day, and not only the free use of fruit, but also ardent spirits. As the wind rises in the evening, and cools the air, additional clothing will be needed.

Before entering the Bay of San Francisco, it will be proper to allude to the overland routes at other places besides Panama.

1. From Musquito Gulf up the river San Juan, and through Lakes Nicaragua and Leon, to Realejo on the Pacific. This route will afford an outlet to a rich country surrounding the lakes. But it is very hot and unhealthy on the San Juan, and infested with insects.

2. From the Gulf of Mexico near Vera Cruz by the river Coazacualo to Tehuantepec, in the gulf of that

name on the Pacific; the distance being 130 miles. It is unhealthy, like the other routes. The line of a proposed communication is 198 miles. The river Coazacualo is navigable for large vessels 30 miles, and for small vessels 15 miles beyond. The distance from New Orleans by the Tehuantepec route is 1700 miles less than by way of Panama, and from New York it is 1100 miles less.

3. From Vera Cruz, or from Tampico through the city of Mexico, 200 miles, and thence to Acapulco, 240 miles.

4. From Vera Cruz or Tampico to Mexico, thence through Valladolid, Guadalaxara, and Tepic, to Port San Blas, Lat. $21^{\circ} 30'$, a distance of 600 miles.

Or, 5. From Tepic to Mazatlan, at the mouth of the Gulf of California.*

As prevention is better than cure, travellers over these roads should abstain from walking in the heat of the day, avoid great fatigue, be temperate in meats and drinks, avoid ardent spirit, and whenever indisposition begins, stop and subdue it at once by rest and mild treatment.

To those who take the overland route from the Western States through Santa Fe to S. Barbara, or through Missouri and Utah, or any route still farther north, a small quantity of medicines should be taken with the book. The following articles will suffice for a company of from ten to twenty men. Alum, 1 oz.; blister plaster, 4 oz.; blue pill, 1 oz.; blue vitriol, 1-2 oz.; calomel and jalap powders 20, of 10 grains each; cream of tartar, 6 oz.; Dover's powders 50, of 5 grains each; 10 emetics of ipecac, 20 grains each; laudanum, 2 oz.; sal nitre, 4

* There will hereafter be many overland travellers on all these routes from the Gulf of Mexico, and also from the Mississippi, to California, who will need medical advice. Such should provide themselves with this or some other similar book as a travelling companion, to which they can refer when attacked by disease in situations where a physician is not to be consulted. Such persons should each take with them a few medicines, say one dozen blue pills, some mild cathartic pills, two or three emetics, an ounce of laudanum, and two or three dozen quinine pills of three grains each. With these few articles, under the directions of the book, the bowels may be regulated, and the progress of fevers or fluxes can be stayed, until a physician can be obtained, and in most cases the necessity for one may be obviated.

oz. ; simple ointment, 6 oz. ; quinine in pills, 100, of 5 grains each ; Epsom Salts, 8 oz. ; super-carbonate of soda, 4 oz. ; sugar of lead, 1 oz. ; tartaric acid, 1 oz. ; tartar emetic, 12 doses, 6 grains each ; white vitriol, 1 oz. ; simple cathartic pills, one box. One of the tartar emetic doses of six grains may be dissolved in half a pint of water, and given as a substitute for antimonial wine, in cases and doses where that medicine is prescribed in the book.

The above medicines may be packed in a small tin box, 9 inches long, 6 wide and 6 deep, which would include the book. If any of the medicines should be exhausted, they may be replenished at Santa Fe, Salt Lake, and at military stations.

Climate and diseases of San Francisco.

Having traced the shore of the Pacific from Panama to San Francisco, and alluded to the several overland routes, we shall proceed to notice the climate and diseases of this important city, and of the Sacramento valley and gold placers. Medical men here are numerous, who can be consulted whenever disease actually occurs. But newly-arrived persons, whether by sea or land, have always suffered more or less from fatigue and privation, and need advice to prevent the diseases to which their constitutions are now peculiarly susceptible.

Passing into the Straits of San Francisco from the Pacific, we emerge from them after leaving San Solito on the left, and a little farther on reach the city of San Francisco on the right, at the entrance into a bay of that name.

The Sacramento and San Joaquin valley, through whose centre the rivers of that name run, north and south, is 500 miles long and 30 to 40 wide. The entrance to it is 40 to 50 miles in a N. E. direction from San Francisco. The chain of mountains that separates it from the Pacific is 40 to 50 miles broad. On the opposite or east side of the Sacramento valley, are the lofty snow-capped chain of mountains called Sierra Nevada. The

melting snow from these, and the torrents of rain during the rainy season, have formed tributary streams and ravines that open into the great valley; and it is on these streams and gullies and canons, at various elevations from the Sacramento and San Joaquin rivers, that most of the gold is dug.

No other country presents such a diversity of features, soil, and climate, as California. Yet, with the exception of the mountain regions of perpetual snow, the average temperature of the Pacific coast is less severe than that of the Atlantic coast at corresponding degrees of latitude. The rainy season corresponding to our winters, is from November to March or April inclusive, but in some years it falls very abundantly nearly every day, and in others sparingly, "while several consecutive seasons have been known to elapse with scarcely any rain." During the rainy season the temperature is agreeable, and were it not for the mud, "the deep, filthy, and adhesive mud," which interferes with all comfortable locomotion, this season would be decidedly preferable. It is also the best season for mining, so far as health and, perhaps, average success too, depend. In the gold regions the month of October is the best in the year, and November, if perchance rain is delayed. The monthly mean temperature at San Francisco for six winter months, in 1847-48, was as follows: October 57°; November 49°; December 50°; January 49°; February 50°; March 51°.

The dry season proper at San Francisco is from March or April to November. The mornings are then generally clear and intensely hot, until the middle of the day, when the sky becomes overcast and gloomy, a strong north-west gale sets in from the ocean, raising a cloud of clay dust that is exceedingly annoying. It is often accompanied at nightfall by a thick, driving fog, and the thermometer rapidly falls some forty degrees or more, making the nights most gloomy and uncomfortable.

Sound, robust constitutions, and prudent livers, with plenty to eat and drink and wear, enjoy good health here, the bracing air from the sea inducing a vigorous appetite. But with those who have newly arrived, worn down by fatigue

or privation or ill health, or who live imprudently, the case is different. The brackish water of the city induces bowel complaints. Sudden changes of diet and indulgence in fruits, and the sudden checks of perspiration, cause fluxes and mild typhus fevers, and if badly clothed, rheumatism, catarrhs and pleurisies. But miasmatic diseases, says Dr. Leonard, are not seen here unless contracted elsewhere ; and in this respect San Francisco and other seaports differ from the interior, where marshes cause fever and ague.

In the Sacramento and San Joaquin valleys (which are one only in name) the shores of the rivers are flat and marshy, overgrown with *thule*, a sort of light cane or rushes, and trees are scarce until far up the valley. The summer and autumn are hot and dry, the thermometer raging from 80° to 120° , with scarcely any breeze ; and in winter and spring it is damp and rainy, the mercury seldom falling below 36°, or rising above 60°. The extremes of heat and cold in July are greater in the canons or ravines than in the valleys. The intensely hot rays of the sun through a dry, clear atmosphere, are reflected from the sides of the ravines and mountains, whilst the snow-water from the mountain tops raises the water in all the streams one or two feet during the night and imparts a chill to the atmosphere.

There has been and still is a vast amount of sickness in the great valleys,— diarrhoea, dysenteria, intermittent and remittent fevers,— and many are sick from typhus, which these induce. Scurvy is also very common. Large numbers are constantly returning with constitutions broken and wasted, and many more would come if they were able.

A recent letter from Dr. B. Coit to Dr. Johnson states that the sickness in the interior has been appalling ; but this has ever been expected by the reflecting as inevitable, crowding as emigrants do into a *malarious country* in the heat of summer, with systems already reduced by long voyages or journeys. No young men who have been delicately reared, or have not been inured to labor, should think of trying their hand at gold-digging. The majority leave with broken health and spirits, and much depends on chance, hard toil often failing of any adequate return. Few

who work in the mines ever carry home their usual full health. Besides the above-mentioned diseases the miners are often afflicted with scurvy, resulting from the use of salt meats with scarcity of fresh vegetables. It should also be mentioned that there is a great liability to get poisoned by coming in contact with a species of ivy, and also by a shrub, probably the dogwood. Their effects, says Dr. Leonard, are sometimes very severe and unmanageable.

A few words of advice must close. "Diggers of experience in the mines travel by night during the dry season, to avoid the rays of the sun. Their hours of labor are from daylight to about 10 or 11 A. M., and from 4 P. M., until dark. Individual efforts, as a general rule, are less likely to succeed at the mines than small companies provided well with clothing and provisions. Salt pork is more likely to produce scurvy than salt beef or fish. Dried apples or other dried fruits for stewing, and above all, fresh lemons, are excellent, where so much salt meat is unavoidable. Bread from wheat meal, Indian corn meal, rice and molasses, potatoes and cabbage to eat raw, mixed with vinegar, as a salad, are very valuable preventives of scurvy. Chocolate is better than tea or coffee.

A log-house and plenty of provisions laid by in October, with suitable clothing, including a good blanket, are indispensable. The days on which the cessation of storms permits work are both the most comfortable and healthy to gold-diggers.

Whenever sickness does occur, however mild, abandon labor at once, and if in the canons of the river, gain a higher locality; consult a physician, and keep quiet, and avoid powerful medicines.

For much of the foregoing information I am indebted to my esteemed friend, Dr. J. P. Leonard, an accomplished physician who has visited the diggings.

Diseases in the seaports of Great Britain.

Diseases along this coast vary very little from those in the northern ports of the United States, excepting that in-

intermittent fevers are frequent, which are attributed to fogs and east winds. "An east wind here is usually accompanied by a cold, damp, and unwholesome vapor, which is observed to affect both animal and vegetable health, and in many places to give rise and obstinacy to intermitting fevers, as also to produce frequent relapses." In the southern part of England, particularly in the British Channel, pleurisies are less violent than in North America. The complaints most frequent and troublesome, are typhus, or common fever, intermittents, rheumatism, catarrhs, and consumption.

Sickly season, and diseases of the Mediterranean.

The most fatal disorders to strangers on board ships, are consumptions. This applies more particularly to the crews of men of war, or vessels stationed for a long time in this sea. In some of the islands, particularly Minorca and Majorca, pleurisies are very prevalent in winter. Catarrhal affections and rheumatisms are frequent in every port in the Mediterranean.

In the summer season, the neighborhood of marshes is sickly, especially the Pontine marshes near the Tiber in Italy, where intermittents and bilious remittents are very fatal.

The African shore of the Mediterranean, excepting when the plague prevails, is very healthy, from the straits to Tripoli. From Tripoli to Alexandria, Jaffa, and Smyrna, some of the ports suffer more or less every year with the plague. "It is said to be most prevalent soon after the inundation of the Nile, or rather its recession. Next to the plague in frequency, comes sore eyes. It is called Egyptian ophthalmia. If less fatal than plague, it is more distressing, and is as frequent among crews in vessels at anchor, as among the people on shore. Besides these epidemics that are peculiar to this country, strangers are apt to be seized in the summer season with bilious disorders, fluxes, and fevers."

Sickly season, and diseases on the Western shore of Africa.

The new colony of Liberia, and other settlements along this coast, and the constantly increasing intercourse with them for the purposes of trade, require a particular account of their climate and diseases.

The British settlements in Western Africa are Sierra Leone, Gambia, the Isles de Loss, Cape Coast Castle, and Accra. They are scattered over a line of coast, which, from St. Mary's on the Gambia to Accra, is nearly 1600 miles in extent, and which everywhere exhibits the same remarkable hostility to foreign constitutions. The coast is generally low ; its elevation from Senegal to Sierra Leone, a distance of 100 miles, being only a few feet above the ocean ; its rivers are sluggish and flooded during rains, when the mud they deposit, and the moisture they supply, give rise to an interminable wilderness of forest and brushwood, among which lies rotting the decayed vegetation of many centuries.

In the Sierra Leone command, are comprised the stations of Sierra Leone, the Isles de Loss, and the Gambia. The peninsula of Sierra Leone occupies an intermediate position of the British settlements along this coast, being about 300 miles to the south of the Gambia, and 1100 to the north of Accra, and comprehends a tract of land extending about eighteen miles from north to south, and twelve from east to west.

St. Mary's, near the entrance of the Gambia, is fatal to foreigners, by reason of the great degree of heat, (the thermometer often indicating 100° in the shade,) and the putrid exhalations arising from its shores. The rainy season commences in July and continues about four months, and the diseases that accompany and follow it, are intermittent, remittent, and continued fevers, dysenteria, and cholera-morbus. These prevail at all seasons among recent visitors, and in a milder form often attack seasoned residents.

Free Town, the capital of Sierra Leone, is about six miles from the mouth of the Bunch River, on the south side, and from 40 to 70 feet above the general rise of the river, which is here about ten miles across. No situation could be more unfavorable for foreign constitutions; the supply of good water being the only thing in its favor. The rainy season lasts from June to October, and is introduced and closed with tornadoes. In one year there were fifty-four of these; no part being more liable to them than this and the grain coasts.

The temperature at Sierra Leone, is generally not higher than 95° , but the tranquil state of the air makes it very sultry and oppressive. The mean temperature is about 83° . Continued and remittent fevers, (commonly called yellow fever,) intermittents, dysentery, cholera-morbus, enlargement of the spleen, and chronic inflammation of the liver, are the most common diseases, and are annually fatal to about two-fifths of the whites. Of these, about four-fifths die of fevers, arising from the same causes, though of various types.

After passing Sierra Leone, the country is hilly and woody. As we approach the Bay of Sherbro, it grows more level. The distance here is about 80 miles; within which empty four considerable rivers. This bay is formed by a range of low islands, whose south-east extremity touches the continent, and leaves it obliquely, opening wide to the north-west. The country is low and swampy, and though a sandy beach edges the land, the soil is a deep and heavy clay. For more than 70 miles beyond, the country is low and swampy, with many rivers, until we arrive at Cape Mount. This mountain is on the south side of a large river of the same name. The elevation soon lessens, and in a few miles the same lowness is seen. The country is thickly wooded. Cape Mezurado is about 50 miles beyond Cape Mount, and is the southern barrier to a river bearing the same name. These rivers overflow during the rains.

The *Grain Coast* begins at the Mezurado, ($6^{\circ} 30'$ north latitude, 10° west longitude,) and terminates at Cape Pal-

mas, (4° north latitude, 7° 20' west longitude.) The land is uniformly low, with thick woods, and many small streams, navigable only by canoes. The coast is shelving, and the swell from the Atlantic renders the shore generally impracticable.

The villages are on the sea side, near the streams. The soil is deep, rich, and heavy. "The plain becomes almost an entire morass during the rainy season, hence rice is mostly cultivated and eaten by the natives. Occasionally, one or more trees rise high above the rest, and form the most striking landmark. Places designed for the growth of farinaceous vegetables or roots, have their exuberant, but now withered productions, towards the end of the dry season, set on fire, and the seeds are then put into the ground." The quantity of rain is nearly the same as in the part of the coast last described. This season begins in June, and lasts about four months, with almost continued thunder and lightning, the wind being generally southwest. After this is about a month of fogs, with an almost tranquil atmosphere.

The prevailing diseases of Liberia are fevers and fluxes, and diseases of the liver. Almost every foreigner is attacked with fever within the first nine months, varying in type and severity according to the prudence he exercises in his diet and regimen, and in the other known measures that experience has taught as being effectual in preventing or mitigating its force. In reflecting upon the sickness and loss of life sustained by this colony since its commencement, it affords some relief to know that it is every year becoming more healthy.

Ivory Coast commences at Cape Palmas, and extends to Cape Lahou, in 5° north latitude. It is, like the Grain Coast, low and swampy; toward the Gold Coast it is more level, like table-land. For 700 miles from Sherbro to Cape Lahou, there is a uniformity in soil and seasons, in the luxuriance of the vegetable kingdom, in the natural scenery, and in the character and severity of diseases.

The *Gold Coast* runs about 500 miles, to Rio Volta. Apollonia, the first settlement, is in a rich, fertile country.

Next to it are *Axim* and *Hollandia*, belonging to the Dutch; *Dixcove*, *Succondee* and *Commenda*, belonging to the English; also *Anamaboo*, and beyond this the *Accra* country, where English, Dutch, and Danes have settlements in a finely cultivated and comparatively healthy country. The rains commence in May and terminate in the beginning of August. Between *Accra* and *Rio Volta*, which terminates the Gold Coast, are the settlements of *Prampram* and *Ningo*, the soil of which is light, sandy, and well cultivated by the Dutch.

The *Slave Coast* commences at *Rio Volta*, and extends to *Biaffra*, in latitude 3° north. The whole coast is low and swampy, indented by creeks and rivers, the largest of which are the *Formosa*, old and new *Calabar*, the *Croos*, and *Del Rey* rivers. Owing to the extensive trade through them in palm oil, ivory, and ebony, these rivers are more frequented than any on the coast. The climate is so unhealthy that, on an average, not more than one half of those here employed in trade ever return. "The necessity for vessels to proceed some distance up these rivers, in order to enter on the field of traffic, brings them within the sphere of action of the malaria, generated from the mud, ooze, and decaying matters which continually cover their banks. These sources of disease are greatly multiplied both during and after the rainy season." The prevailing diseases are continued and remittent fevers, dysentery, and cholera-morbus.

There is a great sameness in the soil and face of country along the coast of Africa, from the mouth of the Senegal to Cape Lopez, in latitude 3° south, and consequently a great sameness in the nature of the diseases, being mostly comprehended under the names of fevers and fluxes. Those who arrive on the western coast of Africa, between the Senegal and Benguela, and especially between Gambia and Cape Lopez, are subject within the first nine months, and more frequently within as many weeks, to the endemic yellow fever, to bilious diarrhoea, to cholera-morbus, and dysentery. If a bilious diarrhoea or cholera precede an

attack of fever in a new comer, (commonly called the seasoning,) both diseases may be comparatively mild.

Fevers are the most destructive diseases, and equally fatal with those of the West Indies. The worst forms in the two regions resemble each other so closely, as to have given rise to the opinion that the malignant yellow fever of the West Indies, was imported from the island of *Bu-lam*, latitude 11° north. No doubt, however, the disease is of local origin in both regions, since they both abound in those marshy miasms which are now generally acknowledged to be its sole cause. There are, however, milder grades of fever, as intermittents and simple continued, which rarely prove fatal, though the former are often found to leave a disordered state of the liver, called *ague-cake*. Among the natives, fever is very slight, appearing under the form of a headache, or disordered stomach or bowels, and is of short duration.

Dysentery is also common, and in new comers very acute. It is most frequent on the Gold Coast, probably owing to the scarcity of good water.

Complaints of less magnitude, but very troublesome, are the dry bellyache, prickly heat, Guinea worm, and stroke of the sun.

The fatal diseases prevail mostly during the rains, and for some time after they have ceased. The rainy season begins in Senegal early in July, and continues till the end of October ; at Gambia, a week or two sooner ; at Sierra Leone and Liberia, at the beginning of June ; and along the coast of Guinea, about the middle of May. These rains last about four months, with almost continual thunder and lightning, the wind being generally south-west. To the rain season succeeds about a month of fogs, with an almost tranquil atmosphere, arising from exhalations. This is the most noxious season. But for the almost daily tornadoes, which carry before them the stagnant pestiferous air in a tumultuous sweep, much of the coast would probably be uninhabitable.

The following table exhibits the dreadful mortality that prevails in the Gulf of Guinea, as well as at Sierra Leone.

Within a few years past the British government has taken possession of the island of Fernando Po, in this gulf, and made it the head quarters of its military establishment in this section of the African coast. The waste of life at Cape Coast Castle, and at other stations along the main, made it necessary. Happy would it be were this island free from tropical diseases. Its commanding situation for the suppression of the slave trade through the gulf, renders it a most desirable possession for the English, who are so heartily engaged in endeavoring to stop the traffic in human flesh. Would to God their noble philanthropy were backed by other nations of Europe, instead of being thwarted by the French, Spanish, and Portuguese flags. But Fernando Po was formerly very sickly, and it is to be feared will ever remain so under its new possessors.

From Biafra south to Cape Lopez, and the Portuguese and other settlements along the coast of Loango, Congo, Angola, and Benguela, the salubrity of the climate varies. St. Paul de Loango is tolerably healthy, St. Salvador the most so in this division of the globe, whilst Benguela is very sickly.

TABLE

Exhibiting the annual ratio of mortality per 1000 mean strength of British troops in the United Kingdom at home,—in the Mediterranean, and in the African Colonies,—extracted from the London Quarterly Review, July, 1840.

	MEDITERRANEAN.	AFRICA.	ISLE OF FRANCE.	ST. HELENA.
By fevers.				
Diseases of the lungs.	1,4	2,9	9,3	13,
" of the liver.	7,7	6,0	5,3	4,8
" of the stomach and bowels.	,4	1,1	,4	,8
Epidemic cholera.	1,2		2,2	
Diseases of the brain.	,7		,8	
Dropsies.	,3		,4	
All other diseases.	2,8		1,5	1,4
Total.	15,3	16,3	21,5	25,2
			483,	668,3
			13,7	9,8
				27,4
				25,4

AFRICAN ISLANDS.

Of the Canaries, Cape de Verd Islands, the Island of St. Thomas, Princess, Fernando Po, St. Helena, Cape of Good Hope, Madagascar, Mascarenhas, Mauritius, Eastern shores of Africa.

The Canaries are remarkable for their healthiness. The Cape de Verds are rather unhealthy. St. Antonio and St. Nicholas are the only two islands in that cluster, where strangers are exempted from a general sickness during the rains. These generally begin in July, and continue till November. Sickness is particularly violent in the island of St. Thomas, Princess Island, and Fernando Po.

In St. Helena foreigners enjoy good health.

At the Cape of Good Hope, the settlements are fruitful, pleasant and healthy. Passing these, we come to the large island of Madagascar, where, during the rains, which continue from November till March, this island is very unhealthy, particularly the Bay of St. Augustine and Fort Dauphin, the two places where ships commonly anchor.

The same may be said of Mascarenhas, Mauritius, and the barren island of Diego Reys.

As to the eastern shores of Africa, we shall only remark that Mozambique is reckoned unhealthy; the country of Quiola much more so; but the city of Maradoxa and Melinda are said to be tolerably free from disease.

East Indies.

In all parts of the East Indies situated near large swamps and the banks of muddy rivers and stagnant waters, mortal diseases are very prevalent.

"The English have four presidencies, or governments, namely, Madras, Bengal, Bombay, and Bencoolen. Formerly Madras was the most healthy of these, but latterly it is least so, with the exception of Bencoolen, which has always been the most sickly. Bengal is very sickly

during the rainy season, which commences in June and continues till October. The remainder of the year is healthy. Calcutta, belonging to this presidentship, built literally on a swamp, on the east side of the Hoogly, and surrounded to this moment by immense lakes at a few miles distant, has, by the draining of that part of the city inhabited by Europeans, become as healthy as any country of the same latitude on earth. There are several other places in this vicinity that seem to have been made healthy by being cleared, as Fultah, Barrackpore, Serampore, Chandernagore, Chinsurah. But other places continue sickly."

Bombay is more healthy than Bengal, and in general the whole coast of Malabar is tolerably exempt from disease. The same may be said of Surat and Tellicherry on the same coast. The rains begin in May or June, and last four months.

Manilla, in the island of Laconia, is remarkable for its healthiness. Tranquebar, a Danish settlement, is likewise healthy. Pondicherry, the capital of the French in India, is far from being unhealthy. The same may be said of Goa, the residence of the Portuguese viceroy in India. Batavia, the capital of the Dutch dominions, is annually subject to a fatal and consuming sickness. The rains begin in June, and sickness in July.

The diseases which rage during the wet season, and for some time after it, in the unhealthy parts of India, are malignant and bilious fevers. Foreigners, especially such as live intemperately, are also subject to fluxes and to an inflammation of the liver. This last is almost peculiar to India, and principally to the Coromandel coast. The diseases of the liver are generally preceded by fever, difficult breathing, and violent pain in the right side. The fevers of Bengal are attended with violent bilious symptoms.

Genuine idiopathic inflammation of the liver is ten times more prevalent on the coast of Coromandel than on the plains of Bengal; whilst on the other hand intermitting

and remitting fevers are ten times more frequent in the latter place. This is attributed to the greater heat, being ten degrees higher on the Coromandel coast.

ON CHOICE OF CLIMATE, AS A REMEDY FOR CONSUMPTION, WITH DIRECTIONS TO PATIENTS IN THEIR TRIAL OF IT.

Change of climate stands at the head of remedies for consumption in its first stage, and as a palliative in its second stage. Not that any climate possesses specific virtues in this disease, for statistics of health and mortality show that there is no immunity from consumption in any quarter of the globe. But some climates are more salutary to weak and irritable lungs than others; and experience shows that persons dwelling in northern latitudes, may, generally, under the advice of a physician, and with directions how to profit by its advantages and avoid its disadvantages, derive great benefit from a change to a milder climate during the winter season. My purpose is to give a comparative view of some of the usual places of resort.

The climate of the Northern and Middle States varies so little in respect to latitude, and temperature in mid-winter, that a removal from one place to another would promise little benefit; less, in fact, on such considerations, than some favored positions compared with others do in the same State.

South Carolina and Georgia hold a middle rank between New England and Cuba, and have proved highly beneficial to patients from the North, who labored under chronic bronchitis, and bleeding from the lungs, and also in cases of incipient consumption. I have rarely, if ever, been disappointed in finding the invalids, I have sent to those places, benefited by the change. Aside from the favorable change of atmospheric temperature, there is a satisfaction to the patient in knowing that the facility of communication with those places, enables him often to hear from home, and to return by land, if desirable, at any

moment. Farther south, the most eligible place is St. Augustine, which is resorted to by great numbers from the North, and in most cases with decided advantage. The accommodations for invalids are not so good as may be desirable, but they are undergoing considerable improvement, and all necessary comforts are obtained at a reasonable price. Occasionally there are sudden changes of temperature, and even severe frosts, which require more care and circumspection on the part of invalids, than are requisite in any of the West India islands; less so, however, than Carolina or Georgia.

The *West Indies* are resorted to during the winter season, by invalids from all parts of the United States, partly on account of their intertropical and equable heat, and partly on account of the frequent intercourse kept up with those places for purposes of trade. In the disordered state of the respiratory organs, which I have mentioned, and in more advanced stages of consumption, they generally prove beneficial. Some of them, however, are more eligible than others. Jamaica, from its size, differs from others, in presenting more variety of climate and scenery. Of all the small islands, St. Kitts for its high, and Barbadoes for its low land, are deserving of preference. A change of residence from one island to another is, perhaps, better than remaining stationary, affording as it does the advantages of sailing, and variety and novelty of scene. Santa Cruz has the advantage of English society and customs, and is often selected by invalids from the Northern and Middle States. The thermometer ranges between 76° and 84° during the winter, and usually stands at 80° . The island being very small, its air is oceanic and refreshing, showers are frequent, winds gentle and grateful; and exposure to air pleasurable by day and night. The water is not always pure in this and many of the islands, rain water being the chief supply. Milk is scarce and dear; but tropical fruits are delicious and abundant.

Cuba is, however, the more general place of resort for persons laboring under pulmonary diseases. The country

around Matanzas is thronged by invalids during the winter months. Many of the permanent residents are either American or English, as are also the families and servants in many of the hotels and boarding-houses. The climate is mild and equable during the winter, but is occasionally visited by a chill from the north.

The weather in Cuba from November to May, is uniform in its temperature, and is usually characterized by a pleasant and healthful degree of dryness. It is this, denominated the dry season, which proves particularly agreeable and beneficial to consumptive invalids.

The rainy season, comprising the period from May to October, is rather too debilitating and warm to be agreeable to persons of a tuberculous habit; and yet those who have resided in the island for years in succession, do not consider the rainy season calculated to undermine the general health, or to exert an unfavorable influence on tuberculous lungs.

"There are two classes of consumptive complaints," said the late lamented Dr. Fisher, "to whom it should be recommended to try Cuba. The first class would be those who, in consequence of a hereditary taint, are predisposed to the disease, and who had shown symptoms of the existence of crude tubercles in the lungs; and the second class would be those who have tuberculous deposits in the lungs, which tubercles may have advanced to the state of softening — provided this state should be confined to one lung, while the other lung is comparatively free from the disease; and provided also that the general tone and functions of the digestive and other organs of the body are healthy.

"Individuals of the first class, by taking up their residence in Cuba before the disease has advanced beyond the state mentioned, and by observing, in the most rigid manner, the laws of health, may live and enjoy a comfortable degree of health there, even to an advanced period of life. They should engage in some active business which would require them to be much in the open air, and to take constant and pleasant physical exercise.

"In selecting a residence in the city or in the country, they should be particular in securing a dry and healthy one; and, under all circumstances, they should guard themselves against the effects of a change of the weather from hot to cold, and against the debilitating and enervating influences of the summer and rainy season.

"This season is much less favorable to the safety of the phthisical invalid, than the other portion of the year; and, in consequence of its depressing influence on the vital powers, it is recommended that the invalid should, as often as every two or three years, spend the summer months in a northern climate; by doing which the system regains its accustomed tone and vigor, and is prepared to withstand, for a lengthened period, the enfeebling influences of inter-tropical climate. I became acquainted with many individuals of this class, during my stay in Cuba, who had resided in the island many years, and who enjoyed a firmer state of health at that time than they had for a long period previous to their leaving the United States.

"With respect to the second class of consumptive patients who may with advantage visit Cuba, or those in whose lungs tubercles not only exist, but are in the commencing process of softening, I would remark, that they should arrive in the island in November, or after the rainy season is passed, and remain until May; during which period they will experience and enjoy all the advantages of a uniform temperature of summer heat. This season is usually characterized by a dry atmosphere, and a range of temperature from 74° to 82°. The heat, which otherwise would be oftentimes oppressive, is tempered by the trade winds or sea breezes, which blow in a gentle gale from the east constantly during the day. These, which are most agreeable in their effects on the system, sometimes change suddenly from the east into the north, and then sweep over the island, causing the mercury to fall rather suddenly in the thermometer as low as 68° or 65°. This change in the temperature, and the peculiar chilliness of these 'Northerns' are seriously felt by the inhabitants, and particularly by invalids, and render a change of clothing and even a fire

necessary. These winds are the only circumstances which render a winter's residence in Cuba at all disagreeable ; and as they are of short duration, their unpleasant effects can be and should be guarded against by those whose lungs are invaded by tubercles, whether in a primary or a secondary degree. The class of patients now under consideration, on arriving in Cuba, should not remain long at the place of debarkation, but should seek some boarding place in the country, where they can have the advantage of pure air, pleasant scenery, and constant exercise on horseback. They should make it a rule to rise at an early hour and ride some miles every morning, taking care to return home before the heat of the sun becomes too oppressive. From ten o'clock in the morning, until five in the afternoon, they will find it more agreeable to remain within their cool apartments, reading, writing, or engaged in some pleasant amusements which require gentle exercise of body. After five o'clock, they can exercise again by riding or walking until evening. As it is important that the patient should have his mind constantly and pleasantly occupied, so that he shall even forget that he is an invalid, I would advise him to engage in some agreeable pursuits that may divert his attention from his malady ; and especially would I advise that he should not associate with those who, like himself, visit the island on account of pulmonary complaints. It is too frequently the case, that consumptive patients in Cuba resort in numbers to a few boarding establishments. It would be much better for them if they would not thus associate. For being together, and having nothing to occupy their minds during many hours in the day, they are naturally prone to converse on the subject of their maladies, and oftentimes imagine that they are rapidly passing to the grave. This very thought has an influence in depressing the vital powers, and in hurrying on the disorder to a more serious stage. Patients of the class I am now speaking of, should, therefore, if possible, often pass from one place to another, and remain but a short time at one boarding house. In thus moving about the island, they will necessarily be much in the open air, and take the very kind of exercise

which is the most beneficial. Their minds will also be occupied by agreeable and interesting objects, and their general health promoted. These consumptive patients should make their arrangements to leave the island in the month of May. Those from New England should proceed from Cuba to some southern port, and travel leisurely, and not reach home till the middle or last of June, or until the east winds are over, and summer is fairly commenced. In what I have said respecting the classes of consumptive persons who may be recommended to visit Cuba, you will observe that it is of great importance to the patient that the exact pathological state of his disease should be determined. Many, very many persons, are sent to the island who are in the last stages of the disease, and whose lives are shortened rather than prolonged by leaving home. No patient, whose lungs are more seriously diseased than has been indicated, should leave his home and friends ; and no medical man can be justified in recommending him to do so."

EUROPE.

The climate of the south of Europe, has for ages been associated in the minds of medical men with relief for pulmonary diseases. Marseilles, Montpelier, Hyeres, and Toulon, were formerly the resort of the afflicted. But these places, says a distinguished writer, (Sweetser,) are all liable to cold, dry winds from the north and northwest. Hyeres, situated nine miles east of Toulon, being sheltered from these winds by a range of hills, is preferable to the others. The place is often selected by the invalids of France, but the advantages of its climate are inferior to those of many other places, and would scarcely justify a voyage to it from America or England.

Nice, in Piedmont, enjoys a mild, warm climate, but for many patients it is too exhilarating and exciting. A lofty range of mountains shelters it from the north wind, but during the early spring it is unsafe on account of the chilling north-east and east winds. The atmosphere is generally clear and somewhat dry. The thermometer during the coldest

months seldom falls, save at night, to the freezing point ; and the mean temperature of winter is about 48°. It has long been much frequented by the English, who are sufficiently numerous in winter to form a society by themselves. They reside mostly in the rear of the city, in a part more sheltered by the hills. They informed me, when I visited the city in 1820, that this part is decidedly better for invalids.

Genoa, Leghorn, and Florence, are inferior to Nice as a winter residence for those who suffer from pulmonary affections. They however abound in objects of interest to travellers, particularly Florence, and afford agreeable and cheap accommodations. A few weeks' residence late in the spring may prove advantageous.

Pisa is a pleasant city, situated on the Arno, which divides it into two nearly equal parts. The streets are mostly wide and straight, and handsomely paved. The two most beautiful of them are the Lungo l'Arno, which are broad, quiet, and clean, extending along the curved and handsome quays, on one side bounded by the river and guarded by a wall breast high, on the other lined by fine ranges of lofty buildings. Silence and serenity are striking characteristics of this city, and its scenery is soft and varied. There are many noble structures, beside the leaning tower, to denote its former grandeur, when it was the capital of a great republic, and the residence of a hundred and fifty thousand inhabitants. It has a large English society, a botanic garden, university, extensive library, observatory, and museum of natural history. Pisa has long had the reputation of possessing, for consumptive patients, one of the most favorable climates in Italy. Its climate is genial, but rather oppressive and damp. It is softer than that of Nice, but not so warm ; less soft, but less oppressive than that of Rome. For invalids who are almost confined to the house, or whose power of taking exercise is much limited, Pisa offers advantages over both Rome and Nice, or any other place probably in the south of Europe ; and from what I saw during a visit there, I should prefer it to any other in a majority of cases. Living is cheap, and the hotels and

lodging houses are very comfortable. The northern bank of the river enjoys a milder temperature during the cold season than the opposite side, and should be preferred by the invalid.

Rome. The climate of Rome is mild and soft, but rather relaxing and oppressive; in its physical qualities, Sir James Clark considers it one of the best in Italy. One peculiarity of it, deserving notice, is the stillness of its atmosphere; high winds being of rare occurrence. To an invalid who is anxious for tranquillity, and takes an interest in the fine arts and in Roman history, no place can be compared with Rome. The quiet and solemn majesty that pervades the city, the melancholy grandeur of its ruins, the pomp and solemnity of papal processions, all have, as it were, a sedative and tranquilizing effect on the mind of an invalid. Consumption in its early stages is generally benefited by this climate, especially in mid-winter, and it occurs less frequently here than in most other cities in the south of Europe, and is remarkably chronic in its course. It is also peculiarly favorable for chronic bronchitis. The water is very pure, milk abundant, and all the necessaries and comforts of life are easily and cheaply procured. The pleasantest lodgings are in the Piazza di Spagna, or somewhere in its immediate vicinity.

Naples, for those in health, or laboring under slight debility, and who require mental amusement and recreation more than a mild and equable climate, is a delightful residence, but for consumptives it should certainly not be chosen for a winter abode. High winds prevail there more than at Rome, and those coming from the sea are at certain seasons keen and chilling. I found during a residence of summer months that it is cooler and more equable, excepting when the sirocco wind from Africa prevails, than Rome, or almost any other Italian city. This is owing to the cooling breeze from the West, which draws into the bay.

Malta is not considered a good winter residence for consumptive patients.

THE WESTERN ISLANDS.

If required to state what place of residence appears, on the whole, best suited for pulmonary complaints, I should, from all I have been able to gather, decide in favor of *Madeira*. The mildness of the winter and coolness of the summer, and slight difference of temperature between day and night, render it the most salubrious climate of the northern hemisphere; "and there is no place," says Sir James Clark, "on the continent of Europe, where the pulmonary invalid could reside with so much [advantage during the whole year]." The same author thinks, that "were the accommodations for strangers equal at Teneriffe, and the means of communication between it and Madeira more frequent, many invalids might benefit greatly by passing the winter partly at Funchal in Madeira, and partly at Santa Cruz in Teneriffe, which is about four degrees further south."

The Azores, situated five degrees further north, and further removed from any continent, enjoys a climate more purely oceanic, mild, humid, and equable, and better suited for bronchitis, than even Madeira.

Comparing Madeira with the Canaries and Azores, we find a gradual transition from the humid, soft, and equable climate of the Azores, to that of arid and rocky Teneriffe, where the want of rain during the greater part of the year, renders much of the island dry and sterile. Madeira presents an intermediate climate between the two, and has the advantage of a cooler summer than either. They all abound in tropical fruits and vegetables of all kinds, in eggs and fowls, and in all the necessary comforts that an invalid requires. There is good English society, and frequent communication between them and both the continents.

CONCLUDING REMARKS.

I have ever felt sensibly the weight of responsibility that a physician incurs in deciding on the propriety and

expediency of a sea-voyage, and change of climate, in cases of threatened consumption. On the one hand it seems like banishing the sufferer from home and kindred for an uncertain boon ; and on the other it may prove a fatal error to dissuade from a trial of perhaps the only remedy that could benefit. There are also many other circumstances to be weighed beside the actual condition of the lungs. Ample pecuniary means, the feelings and habits of the individual, the sex, taste for travelling, and for mental improvement, condition and attractions of home, and a variety of other considerations are to be taken into account. Granting all these to be favorable, what are the period and circumstances in which benefit may be expected ? I answer, that when the symptoms have but recently begun to declare themselves, and are slight, some trifling, not very marked disturbance of respiration, commencing emaciation, some cough, bleeding from the lungs, there is a reasonable hope of benefit, even though there be some purulent expectoration. Life may be protracted, and a repetition every winter may carry the patient along through the period of life most susceptible to confirmed consumption. Again, if percussion and auscultation show that the disease is limited to but a small portion of the lungs, then change of climate, and the sailing or journeying, one or both necessary in effecting it, may assist the constitution to bear up under such limited disease, and prevent its farther increase. Furthermore, when the disease is manifestly chronic in its nature, even though the disorganization of the lungs be further advanced, the subject would probably be rendered more comfortable, and live longer, in a mild and equable climate, than in one more severe and variable. Finally, change of scene, and the buoyancy of hope inspired by the prospect of travelling, will have a salutary influence, independently of a mere change of temperature, and this should induce the patient to change his residence often, while absent from home, temporarily at least, rather than to continue in the same city.

Travelling itself should be so conducted by the invalid,

that neither his mind or body be overwrought. The former should be amused and pleasantly excited, but not fatigued. "Italy, in a particular manner, so abounds in objects awakening the most eager curiosity, and interesting associations, that there is constant hazard of undue mental and physical exertion. Constant sight-seeing is wearing to those in health, and much more so to the invalid, and may unfit the body for quiet rest at night. The exercise of the body too should be pleasantly exciting, but never exhausting, and not suffered to encroach on the usual hours of sleep." The churches of Italy, with the exception of St. Peter's, are cold and damp, and should be avoided.

Flannel should be worn next the skin, and thick-soled shoes, or what is better, shoes with false soles of cork. The patient should always have an overcoat at hand. He should avoid lofty mountains and the damps of evening—subsist on a light and nutritious diet—should take breakfast previous to setting out in the morning, and bread and milk, or macaroni and fruit at noon, and a plain meal about sunset, and not take a hearty one just before sleep. If only a predisposition to consumption exists, solid animal food, and the light wines, if they agree with the patient, may be taken in moderation. But when symptoms of consumption are manifest, and especially if there exists any inflammatory tendency, both wine and solid animal food should in most cases be avoided. The best vehicle for travelling is one's own carriage, by which the routes, stopping places, periods of travelling and rest, may be adjusted to the patient's strength and convenience. The diligence travels all night, and at a very slow pace; the vettura is still more objectionable. It will be advisable to change the conveyance by land to water, as often as convenient.

Pulmonary invalids should bear in mind the advantages of sailing over those of land travelling. The vicissitudes of heat and cold are less during the twenty-four hours, the rolling of the vessel produces a sedative effect upon the pulse and lessens inflammation, the fumes of tar

emanating from the seams and cordage of the ship, acting upon the secretions in the lungs, improve the expectoration, various kinds of bodily and mental excitement are excluded ; and on the whole, so far as my observation has extended, patients, if not annoyed by sea-sickness, will, in a majority of cases, find themselves benefited during their outward bound passage.

Invalids who go to tropical climates during the winter, should in most cases return during the summer season. They should not return direct to New England, till after the month of May ; they would do better to land at a southern port and approach the north gradually. I have known many persons complain of increased cough, and sometimes have bleeding at the lungs the moment they arrived on soundings, if previous to the first of June.

APPENDIX.

TABLE OF WEIGHTS AND MEASURES EMPLOYED IN MEDICINE.

A pound, lb. j			
An ounce, ʒ j	contains	12 ounces,	ʒ xij
A drachm, ʒ j		8 drachms,	ʒ viij
A scruple, ʒ j		3 scruples,	ʒ iij
		20 grains,	gr. xx
The gallon,		eight pints,	
The pint,	contains	sixteen ounces,	
The fluid ounce,		eight drachms,	
The fluid drachm,		sixty drops.	

When medicines are directed in the quantities of a tablespoonful and a tea-spoonful, it is to be understood that the spoons are of middling size, the former equalling about half a fluid ounce, and the latter a fluid drachm.

Sixty drops of water, one hundred drops of spirits and tinctures, and one hundred and twenty of alcohol, are equal to a drachm by measure.

The doses prescribed in this book, are intended for male adults. Boys from fourteen to eighteen are to take only three-fourths the quantity; from ten to thirteen or fourteen, one-half only.

MEDICINE CHESTS.

There is no part of the supplies of a merchant vessel in which such want of system exists, as in the medicine chest. It is true that there is a medicine chest on board each vessel over a certain size, and that there are medicines in it, and this answers all the requirements of the law. But

let a physician, who is acquainted with the medical wants of seamen, examine the chest, and he will report that bulky articles of trifling cost occupy most of the room, to the exclusion of other articles, absolutely necessary in case of sickness. The reason offered for this, when the apothecary is not afraid of offending his customers by giving it, is, that owners, from being in the habit of obtaining chests for certain sums, are unwilling to give more at the suggestion of an apothecary; and that it is necessary for the chest to exhibit large quantities of medicine in order to give satisfaction. It would, however, be inconsistent with the fair and humane character of American merchants, to withhold their consent to any improvement suggested by a disinterested person, acquainted with nautical diseases.

But the impositions most to be complained of are practised by foreign apothecaries, who not only put up wrong proportions and unnecessary kinds, but cheat in the price and quality of the articles.

To correct such abuses and make medicine chests more uniform throughout the merchant service, the following list of articles is made out, with the proportions and quantity necessary for each, according to the size of the vessel, and also the ordinary prices in the seaports of the United States. To this list is prefixed the law, &c.

THE LAW RELATING TO MEDICINE CHESTS.

"Every vessel of one hundred and fifty tons or upwards, navigated by ten or more persons in all, and bound on a voyage beyond the United States, and every vessel of seventy-five tons or upwards, navigated by six or more persons in the whole, and bound from the United States to any port in the West Indies, is required to have a chest of medicines, put up by an apothecary of known reputation, and accompanied by directions for administering the same. The chest must also be examined at least once a year, and supplied with fresh medicines.

"In case of dispute, the owner must prove the sufficiency of the medicine chest. It does not lie with the seaman to prove its insufficiency.

"If a vessel has a suitable medicine chest on board, it would seem that the ship is not to be charged with the medicines and medical advice which a seaman may need. But the ship is still liable for the expenses of his nursing, care, diet, and lodging. Accordingly, if a seaman is put on shore at a hospital or elsewhere, for his cure, the ship is chargeable with so much of the expense as is incurred for nursing, care, diet, and lodging; and unless the owner can specify the items of the charge, and show how much was for medical advice, and how much for other expenses, he must pay the whole. The seaman is to be cured, at the expense of the ship, of a sickness or injury sustained in the ship's service; but if he contracts a disease by his own fault or vices, the ship is not chargeable. A sick seaman is entitled to proper nursing, lodging, and diet. If these cannot be had, or are not furnished on board the vessel, he is entitled to be taken on shore to a hospital, or to some place where these can be obtained. It is often attempted to be shown, that the seaman was put on shore at his own request. This is no defence. He is entitled to be put on shore if his disease requires it; and it is seldom that proper care can be taken of a seaman on board ship.

"If a seaman requires further medicines and medical advice than the chest and directions can give, and is not sent ashore, it would seem that the ship ought to bear the expense; but this point has never been decided. If the medicine chest can furnish all he needs, the ship is exempted."—*Dana's Seaman's Friend*.

CONTENTS OF A MEDICINE CHEST.

PROPORTIONS ACCORDING TO THE NUMBER OF PERSONS IN A SHIP, AND THE FAIR PRICE OF EACH MEDICINE.

No.	Names.	From 16 to 40 men.			From 8 to 16 men.			Less than 8 men.			Doses Internally Given.
		lb. oz.	\$ cts.	lb. oz.	\$ cts.	lb. oz.	\$ cts.	lb. oz.	\$ cts.	lb. oz.	
1	Alum.	4	6	2	4	1	1	1	1	3	4 grs. of powder, made into a pill.
Ammonia. See Hartshorn.											
2	Antimony (or Tartar Emetic), in 4 grain powders, for emetics and solutions; also for cough and fever mixtures, &c. No. 50, 30, and 20, according to No. of men.		35		25			15			{ Dissolve each in 4 table-spoonfuls of warm water.
3	Balsam Copaiva.	8	60	8	60	4	4	40	20 drops on sugar or water.		
4	Blister Plaster. (In roll.)	6	55	3	30	2	2	20			
5	Blue Pill. (In mass.)	4	35	2	20	1	1	12	One pill for syphilis; four as a cathartic.		
6	Blue Vitriol.	½	4	½	4	½	½	4	{ As an emetic in case of swallowed poison, 15 grs. in a glass of water.		
7	Calomel Pills, 2 grs. each, No. 200, 100, 80. (Tin box.)	1	50		80			70	1 or 2, morning and evening, insyphilis.		
8	Calomel.	1	20	½	15	1	1	12	{ 20 to 30 grs. for a cathartic in malignant fevers, and cholera of India, and the West Indies, and Africa.		
9	Calomel & Jalap Powders, 10 grs. each, No. 40, 25, 10.		50			30		20			
10	Camomile Flowers. (Box.)	8	30	4	17	2	2	10			
11	Castor Oil.	1	30	8	20	6	6	15			
12	Camphor, Spts.	1	50	8	30	6	6	25			
13	Caustic.	1	25	½	25	½	½	25			

NOTES AND DIRECTIONS CONCERNING EACH MEDICINE.

APPENDIX.

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No. 1 Is chiefly useful externally to stop bleeding, and for fungous ulcers; for gargles for sore throat, by dissolving a tea-spoonful in a tumbler of water. Internally, in obstinate diarrhoea, in pills.

2 As an emetic take one table-spoonful every 15 minutes until it vomits. In lung fever and pleurisy, and other high inflammations, two tea-spoonfuls. In coughs and fevers, one tea-spoonful. See "Pectoral" and "Cooling Mixture;" in the Appendix.

3 Balsam Copaiava, given chiefly for gonorrhœa, and gleet; dose 20 drops, three times a day, dropped on the surface of a glass of water, or into sugar. It is good in piles.

4 Useful in local pains and inflammations, particularly about the lungs; may be spread on cloth or leather, very thin, and applied near the part affected, and allowed to remain twelve hours.

5 Useful in biliary obstructions, especially after having had bilious fevers in tropical climates. Also in syphilis, morning and evening, in doses of 3 or 4 grs. When taken as a cathartic, it should be followed soon after with other physic to assist its operation.

6 Useful to touch old ulcers with; a solution of it may be drawn into the nose when bleeding; sometimes given as an emetic.

7 May be taken night and morning, in cases of syphilis that absolutely require it. Most recent cases can be cured without mercury.

8 In the fevers and fluxes of India, Western Africa, and the West Indies, large doses of 10 to 20 grains are given at the onset of the disease, and salivation is hastened by frequent small doses.

9 Given when very strong cathartics are required, as in brain fever, and commencing jaundice.

10 Useful in a recovery from fever, and in other cases of debility. Made like other herb teas.

11 Several extra bottles of this should be taken on long voyages. A tin canister is safer at sea.

12 The gum loses fast by evaporation. It is best to mix it in less spirit than will dissolve it, and replenish the bottle with spirit. It is a useful medicine in typhus fever, and for colics. Also for liniments, for rheumatism, mixed with olive oil and ammonias, equal parts.

13 This is chiefly used to touch chancre with.

APPENDIX.

TABLE CONTINUED.

NO.	NAMES.	From 16 to 40 men.			From 8 to 16 men.			Less than 8 men.			DOSES GIVEN INTERNALLY.
		lb.	oz.	\$ cts.	lb.	oz.	\$ cts.	lb.	oz.	\$ cts.	
14	Cream of Tartar. (In box.)	1		30	8		17	4		10	{ A tea-spoonful or two in water or molasses.
15	Dover's Powders (made into pills), 4 grs. each. Nos. 230, 115, 60.	1	25		70			30			{ 1 pill in fever, and for coughs and colds, and 2 or 3 in rheumatism, every four hours.
16	Elixir Vitriol. (Glass stopper.)	4		10	4		10	1		6	8 to 10 drops in a gill of sugared water.
17	Flax Seed. (In box.)	2		20	1½		17	1		15	{ A tea-spoonful to a quart of water for teas.
18	Gentian, in coarse powder. (Box, or jar, or paper.)	8		17	8						{ A table-spoonful to a pint of hot water, and boiled 20 minutes.
19	Gum Arabic.	4		17	2		10				The same as flaxseed.
20	Hartshorn, Spirits of.	1	40		8		25	6		20	10 drops in water.
21	Iodide of Potash.	1	1	40	1		40				Dose 4 or 5 grains, twice a day, in water.
22	Ipecac, in emetics, 20 grs. each. Nos. 24, 16, 10, according to the size of the chest.	8		60			40			20	{ The best emetic is half of an Ipecac, and half of a Tartar emetic dose mixed.
23	Laudanum.	8		40	6		30	4		20	30 to 80 or 100 drops.
24	Mustard, 4 boxes, $\frac{1}{2}$ lb. each. Do. do. 2 do.	88						44			{ 5 to 10 grains in half a gill of water; in fevers and scury, every 3 or 4 hours.
25	Nitre Sal, powdered.	1		17	6		10	4		8	A tea-spoonful in a wine-glass of water in fevers.
26	Nitre, Sweet Spirits of.	1		40	8		25	6		20	
27	Ointment, simple.	1		38	1		38	8		8	
28	Ointment, Mercurial.	1		45						23	
				6						30	

NOTES AND DIRECTIONS.

No. 14 Cream of Tartar makes a cooling beverage in fevers ; useful laxative mixed with sulphur. Dose a tea-spoonful.

15 Dover's Powder is very improperly omitted in many medicine chests. It is very useful in rheumatism, and severe colds and pleurisies, and in typhus fevers. Dose 1 pill, and for rheumatism 2 or 3 pills every four hours, and especially at bed-time. If desired, to give with calomel or camphor, the pill may be mashed into a powder.

16 Elixir Vitriol is valuable in the decline of fever, and in typhus fever when the stomach can bear it. 10 grains of nitre added to 10 drops, is excellent in scurvy. A drop of it added to quinine and water, dissolves the former. The vitriol phial should have a ground glass stopper.

17 Excellent in coughs, lung fever, clap, catarrh, and for boiling with meal or pounded bread for poultices.

18 Gentian may be made into decoction like quassia ; is useful as a tonic ; steeped in spirit with orange peel, it makes a good bitter.

19 Gum Arabic, same as flax-seed tea in preparing and using.

20 Hartshorn mixed with sweet or sperm oil, and shaken, makes a good liniment for rheumatism ; adding spirits of camphor, makes it opodeldoc. Good to apply in sore throat and old sprains.

21 Iodide of Potassium ; is useful in old venereal eruptions and swellings, and ulcers.

22 Ipecac is better as a common emetic, but a mixture of the two is still better. Useful in the beginning of all fevers, excepting, perhaps, the yellow fever. Mix in a gill of water, and take half at a time, waiting 20 minutes between.

23 Laudanum may be replenished by an ounce of opium to a pint of spirit, and letting it steep 10 days.

24 There is great deception in mustard. Inquire for Underwood's superior. The smaller vessels can be supplied from ships' stores.

25 Nitre is useful in all fevers, and in some inflammations ; 10 grains dissolved in water, or half an even tea-spoonful ; the same mixed with 10 drops of elixir vitriol or other acid is useful in scurvy.

26 Spirits of Nitre, given in fevers and gonorrhœa, colds and dropsy.

27 Made easily on board by melting spermaceti, olive oil, and beeswax together.

28 Mercurial ointment is apt to separate in hot weather, which may be prevented by inverting the vessel every few days. Used to assist in raising mercurial action, the bulk of a nutmeg to be rubbed inside the thighs.

TABLE CONTINUED.

NO.	NAMES.	From 16 to 40 men.			From 8 to 16 men.			Less than 8 men.			DOSES GIVEN INTERNALLY.		
		lb. oz.	\$ cts.	lb. oz.	\$ cts.	lb. oz.	\$ cts.	lb. oz.	\$ cts.	lb. oz.	\$ cts.	lb. oz.	\$ cts.
29	Opium.	1	45.	$\frac{1}{2}$	2.5	$\frac{1}{2}$	6	$\frac{1}{2}$	6	$\frac{1}{2}$	6	Two grains, or one small sized pill.	
30	Paregoric.	1	38	1	8	2.5	6	16	2	18	18	{ A tea-spoonful to two or three in a wine-glass of tea or water.	
31	Pearl Barley.	$1\frac{1}{2}$	20	1		16		20	2	10	10	{ A table-spoonful to a quart of water, boiled an hour.	
32	Peppermint, Essence of.	8	23	6		20		20	2	12	12	Dose 30 drops.	
33	Quinine Pills, made with conserve of roses, 2 grains each. No. 60, 40, 30, according to No. of crew.	8	90			70				50	50	{ Dose 1 or 2 pills as a tonic,—but in intermitents 3 to 5 pills.	
34	Rhubarb, Tincture of.	1	40	8		22		18	1	10	10	1 to 2 table-spoonfuls, as a cathartic.	
35	Salts, Epsom.	2	18	2		18		18	1	10	10	1 to 2 table-spoonfuls.	
36	Soda, Supercarbonate of.	1	25	8		17		17	4	10	10	Half a tea-spoonful in a glass of cold water.	
37	Squills, Syrup of.	1	35	8		24		24	6	20	20	A tea-spoonful in coughs and dropsy.	
38	Strengthening Plaster. (In roll.)	8	25	6		20		20	3	15	15	{ 2 to 3 grains mixed with jelly; in long, protracted diarrhoea. 1 grain to an ounce of water for eye-wash.	
39	Sugar of Lead.	6	15	3		8		8	2	6	6	{ 2 or three tea-spoonfuls in molasses.	
40	Sulphur, Flour of	1	20	1		20		20	8	40	40	{ Half a tea-spoonful with as much soda, to make soda-water; the same quantity in scury.	
41	Tartaric Acid. Tartar Emetic. (See Antimony.)	2	1	25	1	67		67	8	3	3	{ 10 to 15 grains as an emetic; 4 grains as an eye-wash; or 2 of this and 2 of lead in half a pint of water.	
42	White Vitriol.	6	15			2		6	1			\$6 60	
	Total Price.									\$11 11	\$11 11		

NOTES AND DIRECTIONS.

- No.29 Useful in pain, in toothache, but not in headache. In all severe colics it should be given freely at first. Useful in rheumatism.
- 30 Paregoric, mixed with an equal quantity of aui monial wine, is good in coughs and colds. See Pectoral Mixtuc.
- 31 Pearl Barley requires long boiling; it is useful in bowel complaints, fevers, coughs, and colds.
- 32 Is less used than formerly, and might be left out of the chest.
- 33 Quinine should, for small vessels, be made into pills of 2 grains each. It is prepared for taking by putting 40 gratus into as many table-spoonfuls of water in a phial, and adding 4 or 5 drops of elixir vitriol. A table-spoonful is a dose of 2 grains. Quinine pills; one pill as a tonic, and two every six hours in intermitents.
- 34 Rhubarb, tincture of, is good in chronic diarrhoea, in tea spoonful doses. As a cathartic in 1 to 2 table-spoonfuls.
- 35 There should be at least 50 lbs. of salts, extra, on board whale ships, kept in a pail or box, to replenish the bottle.
- 36 Soda, supercarbonate, is useful for acid stomach; with equal quantity of tartaric acid. it makes soda powders.
- 37 Squills is useful in coughs, but its place might well be supplied by syrup or molasses, with sharp vinegar and the juice of garlic or onions.
- 38 Strong glowing plasters are useful in weakness of the back.
- 39 Lead, sometimes called acetate of lead, or selenarium saturni, is useful in bleeding at the lungs and the bowels; dose 2 to 3 grains rolled into a pill with crumbs of bread; applied externally in inflammations.
- 40 Sulphur is useful in piles, and in salivation; also in itch ointments.
- 41 Useful in scury as a beverage; with soda, it makes soda powders.
- 42 White Vitriol, 2 gratus, with sugar of lead, 2 grains, and 6 ounces of rain or soft water, makes a good wash in inflammation of the eye, and a good injection in gonorrhœa. A tea-spoonful dissolved in half a pint of warm water is a good emetic for ejecting poison from the stomach. It will also stop for a time alaruming bleedings from the lungs, when other medicines fail.

INSTRUMENTS, UTENSILS, DRESSINGS, &c.

ARTICLES PROPORTIONED TO THE NUMBER OF THE CREW.

		\$ c.		\$ c.		\$ c.
Lancets.	No. 2	50	No. 2	50	No. 1	25
Penis Syringes.	2	25	2	25	1	13
Bougies, small size.	3	36	2	25	2	25
Gum Elastic Catheter.	2	50	1	25		
Clyster Syringe, 12 oz.	1	75	1	75		
Cotton Bandages, 12 feet long, 3 inches wide.	6	36	3	18	2	12
Patent Lint.	4 oz.	25	2 oz.	15	1 oz.	8
Clean Rags.	1 lb.	17	½ lb.	10	¼ lb.	6
Cotton Batting, for burns, and for dress- ings.	1 lb.	20	½ lb.	12		
Adhesive Plaster, spread.	1 yd.	36	½ yd.	20	¼ yd.	12
Sheep skin, for plasters.	No. 1	25	½	15	¼	10
Splints, for fractures.	No. 5	50	4	40	2	20
Tooth drawer.		1,00	1	1,00		
Curved Needles, and Waxed Threads.	No. 2	20	2	20		
Scales and Weights.		1,00		1,00		
1 Field Tourniquet.		25		25		
Spare phials, with corks.	No. 4	20	3	15		
Spatula.		15		15		
Graduated Glass.		15		15		
Medicine Chest and Furniture.		4,00		4,00		2,00
Medicines.		11,40		10,20		3,31
		17,11		11,24		6,60
		\$28,51		\$21,44		\$9,91

HOSPITAL STORES.

Sago, 2 lbs.; Lemon Juice; Chloride of Lime, in a bucket, say 30 lbs., 20 lbs., 10 lbs., according to the size of vessel. Also, Wine; Tea; and Sugar; and Fowls. Also, Opodeldoc, 1 doz. bottles.

PREPARATIONS OF MEDICINES AND DRINKS.

DECOCTIONS, TEAS, GRUEL, &c.

Decoction of Gentian. Take of gentian in powder one ounce, water one pint and a half. Put the gentian into a tin pot, and pour the water on it heated. Cover the vessel and boil for ten minutes.

This decoction is given in all cases where a bitter tonic in considerable quantities is requisite. The dose is from two to four table-spoonfuls.

Decoction of Oak, Peruvian, and Cascarilla Bark, and of Nutgalls, may be made in the same manner.

Barley-water. Take of pearl barley three table-spoonfuls. First wash the barley from the mealy matter that adheres to it, with some cold water; then boil it a little with about half a pint of water, to extract the coloring matter. Throw this away, and put the barley thus purified into five pints of boiling water; which is to be boiled down to four pints and strained. This decoction is to be used freely, as a diluting drink in fevers and inflammatory complaints.

Flax-seed tea. Take of flax-seed or linseed, whole or powdered, two table-spoonfuls. Water, three pints. Boil one hour and strain. This is an excellent drink, in cases of clap or other inflammation in the urinary passages, and also for coughs and other inflammations. It may be rendered agreeable by sugar and lemon-juice.

Directions for making arrow-root, also water-gruel, from oat-meal, flour, or Indian-meal. Take two large table-spoonfuls of either of the above articles. Water, half a gallon. While the water is heating, rub the flour or meal, &c., in half a pint of cold water, adding a little at a time, then mix it with the hot water, stirring it at the same time, and boil fifteen minutes to half an hour.

Toast-water. This is made by steeping slices of soft fresh bread in water, first toasting the bread till browned

thoroughly, and then putting it into the water while hot. When soft bread cannot be had, the hard kind must answer.

SOLUTIONS.

Solution of Cream of Tartar. To an ounce of cream of tartar, pour one quart of hot water, to which add a little loaf sugar. This is an agreeable beverage in fevers and inflammations, and is a mild purgative. It may be rendered still more agreeable by the addition of a little orange peel.

Lime-water. Take of quick-lime, half a pound, water three pints; mix and cover the vessel for three hours, occasionally shaking it; then pour off the liquor and keep it in a vessel closely stopped. Its dose is from one-eighth to one-fourth of a pint.

Solution of Alum, or Alum-water. Dissolve one drachm of alum in half a pint of water.

Solution of Sugar of Lead, or Lead-water. Dissolve ten grains of sugar of lead in half a pint of water. This makes a good eye-water, and wash.

Tar-water. Take of tar one pint, water one gallon. Boil them together fifteen minutes, frequently stirring them. Afterwards pour off the water for use. This is a valuable application for the piles.

MIXTURES.

Cooling mixture. Take of Epsom salts one ounce and a half, nitre twenty grains, tartar emetic four grains; mix in one pint of water. This is a cooling laxative or mild purgative, and may be given in doses of from one to three table-spoonfuls, every hour or two.

Pectoral or Cough mixture. Take of paregoric two parts, syrup of squills and solution of antimony, of each,

one part, mixed. This is an excellent mixture for a cough, and may be taken in doses of two tea-spoonfuls on going to bed, accompanied by a large draught of flax-seed tea, or crust-water sweetened.

Chalk mixture. Take of prepared chalk, or common chalk, finely powdered, two table-spoonfuls, loaf sugar a table-spoonful, gum arabic in powder two table-spoonfuls, water one pint; rub them well together till they resemble thick cream; add two tea-spoonfuls of laudanum. Dose, a wine-glass every half hour in cholera-morbus.

Effervesing mixture. Dissolve salts of tartar, half a tea-spoonful in two table-spoonfuls of pure water. Then add lemon-juice, half a table-spoonful, and take it while it effervesces. This is valuable in some fevers.

Dover's powders. This powder will be found already prepared at the apothecaries' shops, where it should be put up in doses of fifteen grains each. It may be mixed and taken in warm tea. It is useful in some cases of fever, rheumatisms and other inflammations. When taken, large draughts of warm tea or other diluting drinks should accompany it.

EMETICS, directions for taking. Mix the ipecac, or the tartar emetic powder, in four table-spoonfuls of warm water, and take one of them. A table-spoonful of the remainder is to be taken every ten minutes till vomiting is induced. After vomiting has commenced, warm water is to be drank freely after each operation. Should the vomiting continue too long, its operation may be turned downward by a draught of warm salt-water. Should cramp of the stomach ensue, flannels dipped in hot water are to be applied over it, and twenty or thirty drops of laudanum given.

CATHARTICS OR PURGES, directions for taking. *Salts* may be taken in dose of two table-spoonfuls, dissolved in half a pint of warm water.

Castor Oil, in dose of two table-spoonfuls.

Calomel and Jalap may be mixed in syrup or molasses in a table-spoon.

Blistering plaster. Spread the plaster nearly as thin as a wafer, on soft leather, four or five inches square, and apply to the side, neck or other part, previously rubbing it with spirit or vinegar. After remaining on twelve hours, or till the blister is drawn, the water is to be let out, and a plaster of basilicon, or of simple ointment, applied.

The blister plaster should be preserved for use a second or third time.

CATAPLASMS OR POULTICES.

Mustard poultice. Take pounded bread, with a small proportion of pounded flax-seed, boil ten or fifteen minutes, and spread it on rags nearly an inch thick, to cover the soles of the feet; then sprinkle on the powder of mustard-seed, and apply as warm as the patient can bear.

Emollient poultice for sores and inflammations. Take of Indian meal, or pounded bread, and powder of flax-seed or common flour, equal parts, boil them together, and spread the mixture more than half an inch thick on rags, and apply them warm. They should be renewed every three or four hours.

To preserve eggs at sea. Say about one hundred dozen. One bushel of stone lime, when slacked, one pound cream tartar, one quart of fine salt. Mix these with water until the mass comes to the consistency of thick cream; have your cask tight, cover the bottom of it with this material, and then place the eggs on the end; after having laid one tier, cover them with the mixture and place another tier. This will preserve eggs good a year. The cask should be inverted once in two or three weeks, to keep the yolk from settling down so as to touch the shell.

Milk, how to preserve at sea. Provide a quantity of pint or quart bottles, (new ones are best;) they must be perfectly sweet and clean, and perfectly dry before they are used. Instead of drawing the milk from a cow into the pail, as usual, it is to be milked into the bottles. As soon as any of them are filled sufficiently they should be immediately corked with the best kind of new corks, in order to keep out the external air, and fastened tight with packthread or wire. Then on the bottom of an iron or copper boiler spread a little straw; on that lay a row of the bottles, and some straw between, to prevent their breaking; and a layer of straw over them, to be covered with another layer of bottles, till the boiler is nearly filled; then fill with cold water, and gradually apply heat till it begins to boil, when the fire is to be withdrawn. The bottles must remain undisturbed till quite cool, then taken out and packed in hampers with straw or saw-dust, and stowed in the coolest part of the ship. Milk thus preserved may cross the Atlantic and return as sweet as when first drawn from the cow. [N. E. Farmer, 1835.]

For making spruce beer. Take three gallons of water, blood warm, $1\frac{1}{2}$ pints of molasses, 1 table-spoon of essence of spruce, 1 do. of ginger. Mix well together, and add one gill of yeast. Let it stand over night and bottle it in the morning.

To preserve cabbages, &c., fresh during a voyage. Cut the cabbage so as to leave about two inches or more of the stem attached to it; after which scoop out the pith to about the depth of an inch, taking care not to wound or bruise the rind. Suspend the cabbages by means of a cord tied round the stem, so that that portion of it from which the pith is taken, remain uppermost, which regularly fill every morning with fresh water. By this simple method, cabbages, cauliflowers, &c., may be preserved fresh during a long voyage.

Liebig's portable soup. Take four pounds of lean beef free of fat, and separated from the bones; chop it fine like

sausage meat, mix it with two quarts of cold water, warm it very slowly until it boils briskly one minute ; then strain it through a towel. Evaporate the fluid by placing it in a pan over a kettle of hot water or sand until moisture is entirely dissipated. It is then cut in pieces and inclosed in a tin box for preservation on long sea voyages. A piece of this as large as a cent, boiled in a pint and a half of water, and seasoned and thickened to suit the patient's taste or condition, is highly recommended.*

CHLORIDE OF LIME.

This disinfectant and purifier of both air and water, should be supplied for every vessel, large and small, more especially if destined to warm latitudes.

Chloride of lime is a grayish-white powder, varying in strength, and becoming moist by exposure to air. When very pure, it is nearly all soluble in water, and may be sprinkled upon the floor of any foul apartment, when it will soon remove offensive smells arising from animal or vegetable putrefaction. The addition of a small quantity of diluted sulphuric acid will evolve its virtues with double rapidity. To one gallon of water, add a pint of bleaching powder and one ounce of elixir vitriol, and it will be of a proper strength for correcting the putrid smells of apartments, and of animal putridity. The same effect will result without the acid, but will require more time. It is much used in privies and docks, where the powder itself may be sprinkled. The solution may be sprinkled between the timbers in the hold of a ship, and on the berth-deck, on hammocks and in berths. Foul ulcers and wounds may have their dressings wet, and it may be sprinkled on the surface of a dead body which it is desirable to pre-

* An article called portable soup is sold in the shops, being in pieces shaped like a dollar, only being thicker, and resembles common glue ; being in fact somewhat akin to it in its nature, excepting that glue is made of tainted scraps of sheepskins, sinews and ligaments, boiled a long time and strained, and then evaporated to hardness. Common portable soup I have often tried on board ships of war, but was never satisfied with it. It very soon offends the stomach.

serve on board for interment on shore, or some of the powder may be thrown into the coffin.

It may be advantageously used for purifying offensive water, a property which makes it invaluable in long voyages. For this purpose, from one to two ounces of the powder may be mixed in sixty-five gallons of water. After the purification is effected, the water must be exposed for some time to the air, and allowed to settle before it is fit to drink.

The best way to carry chloride of lime is in covered buckets.

FUMIGATIONS.

The forecastle and other lodging apartments of a merchant vessel should be fumigated as often as practicable, and especially in hot climates. One of the most simple is the

Vinegar fumigation. Immerse a hot iron in vinegar, at the same time closing the hatches.

Another. Sulphuric acid, or oil of vitriol, sal nitre, or saltpetre, of each one ounce.

This quantity is sufficient for an apartment twenty feet square.

The sulphuric acid is placed in a glass or china vessel, and the nitre gradually added: in order to have an abundant extrication of nitrous fumes, it is necessary to raise the temperature of the acid by means of a lamp, or by placing it on hot sand.

This air may be respired with perfect safety, and even with advantage in fevers; it should therefore always be preferred where the sick remain in the room.

On the whole, decidedly the best agent for destroying infections and bad odors, with which I am acquainted, is the solution of nitrate of lead, sold under the name of Ledoyen's disinfecting fluid. Unlike the chlorides, it has no unpleasant smell of its own, while a few tea-spoonfuls,

sprinkled about in a room, will immediately decompose the floating effluvia in the atmosphere, and not only destroy the unpleasant odor, but seem to spread a cleansing and purifying influence which is delightful and healthy. It is somewhat more expensive than the chloride of lime ; but much more real disinfecting power is contained in the same bulk. It comes in bottles of one or two pints, and may be had at most of the apothecaries. Every vessel carrying many passengers should be provided with it.

Chloride of lime sprinkled on the floor of the apartments will remove unpleasant effluvia.

VACCINATION.

Every captain bound on a long voyage, should see that his men are secured, before sailing, against small pox.

If he chooses, he can vaccinate them after leaving port, but in taking virus with him for this purpose, he should remember that it will not keep on quill points at sea but a very few days. A piece of scab hermetically sealed in a glass bulb or very small phial may keep three months. Signs of vaccination having taken, will be apparent about the fifth day.

UNITED STATES LAW

Requiring the Ventilation of Passenger Vessels, and for other Purposes — passed May 17, 1848.

Section 1. Vessels having sufficient capacity according to law, for fifty or more passengers, (other than cabin passengers,) shall, in voyages between the United States and Europe, have on the upper deck for their use a house over the passage-way leading to their apartment below deck, firmly secured to the deck or combings of the hatch, with two doors, the sills of which shall be at least one foot above the deck, so constructed that one door or window in such house may at all times be left open for ventilation ; and all vessels having the capacity to carry one hundred and fifty such passengers or more, shall have two such houses ; and the stairs or ladder leading down shall be furnished with a hand-rail of wood or strong rope. Booby hatches may be substituted for such houses in vessels having three permanent decks.

2. Such vessels having the legal capacity for more than one hundred such passengers, shall have at least two ventilators to purify the apartments occupied by such passengers, one aft and the other forward, leading into the apartments ; one of them shall have an exhausting cap to carry off the foul air, and the other a receiving cap to carry down the fresh air ; which said ventilators shall have a capacity proportioned to the size of the apartments to be purified — that is, for two hundred passengers it shall be twelve inches diameter, and so in proportion to larger or smaller apartments ; and shall rise at least four feet six inches above the upper deck. Other modes of ventilation of equal efficacy shall be deemed a compliance with this section.

3. Such vessel shall have one caboose or cooking range equal to four feet long and one foot six inches wide, for every two hundred passengers, and in this proportion for a greater or less number of them.

4. Also, on leaving port, for each passenger at least fifteen pounds of good navy bread, ten pounds of rice,

ten pounds of oatmeal, ten pounds of wheat flour, ten pounds of peas and beans, thirty-five pounds of potatoes, one pint of vinegar, sixty gallons of fresh water, ten pounds of good salted pork, and a sufficient supply of fuel for cooking ; and where any one or more of the specified articles cannot be conveniently had, an equal quantity of the others may be substituted therefor ; and one pound of either of said articles may be substituted for potatoes ; one-tenth of the aforesaid provisions to be delivered weekly, commencing on the day of sailing, and daily at least three quarts of water, and sufficient fuel for cooking ; and if the ship sails without the above amount of supplies, and the passengers be put on short allowance during any voyage, the master or owner shall pay to each of them, for each and every day they are put on short allowance, three dollars.

Passengers may, with the consent of the captain, supply themselves with the above articles ; or may supply an equivalent in other kinds of food ; and if this by accident prove insufficient, and the captain furnish comfortable food to such passengers during the residue of the voyage, this in regard to food shall also be a compliance with the terms of this act.

5. For the maintenance of good discipline and to promote health, the captain shall have his rules and regulations posted up during the voyage — shall cause the apartments to be kept in a clean and healthy state ; the owners are required to construct the decks and other parts so that they can be thoroughly cleansed, and shall provide a safe and convenient privy for the exclusive use of every one hundred such passengers, and when the weather is such that the passengers and bedding cannot be mustered on deck, the captain shall cause the deck occupied by such passengers to be cleansed with chloride of lime, or some other equally efficient disinfecting agent, and at such other time as the captain may deem necessary.

6. The captain and owner, by failing to provide what is specified in the three first mentioned acts, shall severally forfeit and pay to the United States \$200 for each

and every violation; and \$50 for any neglect or violation of the fifth article.

7. The collector of the customs at any port in the United States where any vessel so employed shall arrive, or is about to depart, shall cause such examination, and report in writing, whether the provisions of the first, second, third and fifth sections of this act have been complied with in respect to such vessels; and if so complied with, and approved by such collector, it shall be deemed as conclusive evidence thereof.

8. When the height or distance between the decks shall be less than six feet, and not less than five feet, there shall be allowed to each passenger sixteen clear superficial feet on the deck, and if the height or distance between the decks shall be less than five feet, there shall be allowed to each passenger twenty-two clear superficial feet on the deck; and by any violation of this act, whether outward or homeward bound, by taking more passengers on board than this section allows, said master shall be guilty of a misdemeanor, and upon conviction thereof shall be punished for a violation of this act; and in computing the number of passengers on board such vessel, those under the age of one year shall be excluded from such computation.

The act passed previous to the above, (February, 1847,) which limits the number of passengers to two for every five tons of the vessel, and the regulations in regard to the requisite supply of water, provisions, &c., are still in full operation. The number of tiers of berths is limited to two; each berth to be at least six feet long and eighteen inches wide for each passenger, and elevated six inches at least from the deck; the berths are not to encroach upon the space allotted to each passenger. (Such is the construction of the act by Secretary Walker, dated March 17, 1847.)

The penalty for carrying or bringing more passengers is a fine of fifty dollars, and imprisonment not exceeding one year for each passenger taken on board beyond the computation of two passengers to five tons of such ship or ves-

sel; and if the number illegally brought exceed twenty, it shall work a forfeiture of ship.

The above is the substance of the United States laws on the subject of carrying passengers, abbreviated in words as contained in the Merchant's Magazine.

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